

# NAVAL HEALTH RESEARCH CENTER

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***DEVELOPMENT OF A MODEL FOR PREDICTING  
MEDICAL SUPPLY REQUIREMENTS AT THE  
FORWARD ECHELONS OF CARE:  
PRELIMINARY FINDINGS FOR ECHELON II LABORATORY  
AND X-RAY ANCILLARIES***

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ANCILLARIES**

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## **Summary**

### **Problem**

The expansion of Marine Corps medical capabilities during the Vietnam era resulted in a substantial increase in Class VIII materiel requirements. These conditions have remained relatively constant through the present. Reductions in worst-case scenario Marine Expeditionary Force casualty estimates and recent organizational changes in medical battalion structure have contributed to the need to review the current Authorized Medical Allowance Lists (AMALs).

### **Objective**

The primary objective of the present study was to develop a model of the Echelon I and II medical supply stream that linked each medical treatment item to a specific clinical requirement. This process produces an audit trail for each item in the Marine Corps medical supply system. The audit trail provides medical planners and logisticians with a management tool for maintaining and updating supplies linking the AMAL materiel with Marine Corps specific requirements. In the present paper, the utility of this approach is investigated in the laboratory and x-ray functions of the Marine Corps medical supply system.

### **Approach**

Eighty-five medical Subject Matter Experts (SMEs) with operational experience assisted in the development of Marine Corps specific treatment profiles for 319 Patient Conditions (PCs). The PCs reflected the range of injuries and disease non-battle injuries known to occur in theater. From the treatment profiles, the specific medical tasks performed at three echelons of care (Ia-Battlefield, Ib-Battalion Aid Station and II-Surgical Company) for each PC were identified and assembled in a model describing the mechanics of forward medical care. Medical consumables and equipment were then assigned by the SMEs to each task and its associated PC. This process established the clinical requirement and the basis for the audit trail for each item needed to perform the treatment tasks. Following establishment of the clinical requirements for the supply items, 4 proposed AMALs, including an equipment AMAL 618 and a consumable AMAL 619 for the laboratory functions and an equipment AMAL 627 and consumable AMAL 649 for the x-ray function, were produced.

## **Results**

Results of the study showed that 34 items (46.1%) in the proposed laboratory equipment AMAL 618 could be eliminated with a corresponding weight reduction of 207.7 pounds (28.4%) and a corresponding space reduction of 10.4 cubic feet (10.4%). Nine items with no known clinical requirement were eliminated in the proposed consumable laboratory AMAL 619 for a net reduction of 11.0%. These savings in the number of items, weight and cubic volume of the laboratory AMALs were realized even though the number of diagnostic tests the laboratory could conduct was increased substantially.

Reductions were also realized for the 2 x-ray AMALs. A net-weight savings of 139.34 pounds (13.9%) and a net-space savings of 6.8 cubic feet (4.2%) was realized in the proposed x-ray equipment AMAL 627. In the proposed consumable x-ray AMAL 649, the number of items eliminated accounted for a 7.1% net reduction.

## **Conclusions**

The results demonstrate the effectiveness of the model in reducing the logistical burden Marine Corps units carry. By establishing an empirical link between theater medical procedures and injury conditions, medical supply decisions can be more closely matched to Marine Corps requirements. This represents a substantial improvement over the current system. Through the process of establishing the clinical requirement for each supply item, an audit trail was produced which, for the first time, gives logisticians and medical planners an objective management tool for maintaining and upgrading AMAL Class VIII medical materiel.

MESSAGE FROM HEADQUARTERS MARINE CORPS

>R 251210Z FEB 97 ZYB PSN 829368Q36  
>FM CG MCCDC QUANTICO VA//INT/REQ/DOC//  
>TO RUEACMC/CMC WASHINGTON DC//LP//  
>INFO RUWFFIX/NAVHLTHRSCHCEN SAN DIEGO CA//  
>RULSMCA/CG MCCDC QUANTICO VA//INT/REQ/DOC//  
>BT  
>UNCLAS //N04400//  
>MSGID/GENADMIN/CG MCCDC QUANT VA/INT//  
>SUBJ/1997 LAB AND X-RAY REVIEW//  
>REF/A/DOC/NAVHLTHRESTR/JAN 97//  
>NARR/REF A PROVIDES PRELIM FINDINGS OF STUDY CONDUCTED FOR THE MARINE  
>CORPS TO VALIDATE WHOLESALE CLASS VIII RQMTS WITH INITIAL LOOK AT LAB  
>AND X-RAY AMALS.//  
>POC/CAPT(SEL) BILL FRANK/MSC/USN/- /TEL: (703) 784-6258/TEL:  
>DSN 278-6258//  
>RMKS/1. REF A WAS REVIEWED AT THIS COMMAND.  
>2. MCCDC CONCURS WITH INITIAL FINDINGS AND WITH METHODOLOGY USED TO  
>PRODUCE PRELIMINARY FINDINGS.  
>3. RECOMMEND IDENTICAL PROCESS BE USED FOR OTHER AMAL-ADALS UNDER  
>REVIEW BY &L AND NAVHLTRESCEN SAN DIEGO.  
>4. POC E-MAIL ADDRESS: FRANKW@MQG-SMTP3.USMC.MIL.//  
>BT  
>#1174  
>  
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**Introduction**

Class VIII logistics apply to the medical and dental materiel, blood and blood products necessary to support the Marine Expeditionary Force (MEF). The expansion of United States Marine Corps (USMC) medical capabilities during the Vietnam era resulted in a substantial increase in Class VIII equipment and consumable supplies. Two primary factors were responsible for this growth. First, was the establishment and maintenance of a stable operating environment that functioned in an area lacking Navy Echelon III medical capability. Second, a new and broader medical structure, consisting of 18 state-of-the-art operating rooms and a holding element of 540 beds, emerged. Taken together, these factors contributed to an explosion of forward medical supply requirements (Tomlinson, 1996). The resultant medical supply capability provided support for a worst-case MEF casualty estimate of 20,000 for a 60-day period. Furthermore, the level of care supported approached, and in some areas, attained Echelon III level capability.

Recent changes in Marine Corps doctrine and policy, which impact medical readiness and capability, have contributed to the need to review the current Authorized Medical Allowance Lists (AMALs). These changes include a reduction in worst-case scenario MEF casualty estimates from 20,000 to 8,381. This represents a 58% reduction in anticipated casualties. In addition, a major reorganization of the medical battalion occurred. Through this reorganization, the medical battalion was downsized in structure and reduced in capability. Significant among these changes are the addition of highly mobile Shock Trauma Platoons (STPs) equipped to augment the Battalion Aid Station (BAS). The Collecting and Clearing Companies have been renamed Surgical Companies and a renewed emphasis has been placed on limiting procedures to only those necessary to resuscitate and stabilize casualties. Furthermore, Surgical Companies are now composed of a triage/evacuation platoon, a surgical platoon consisting of 3 surgical sections and a holding platoon consisting of 3 ward sections. The surgical and holding platoons are staffed for two 12-hour shifts capable of splitting into 2 units for enhanced forward deployability. Likewise, an ancillary platoon consists of 2 x-ray, laboratory and pharmacy sections (McCoy, 1996). As a result of these organizational changes and changes in

policy and doctrine, the medical consumable and equipment requirements for the revised platforms must be reexamined and validated in light of their new capabilities.

Besides changes to the organizational structure of the Medical Battalion, there is a long-term need to improve the entire AMAL review process. For example, the current process is unable to identify and match each consumable/equipment item with its specific clinical requirement. Because the consumables and equipment stocked in the AMALs are not mapped to injury types, the requirement for the items themselves and their quantity cannot be effectively related to the anticipated number and types of injuries requiring them. These constraints limit the current review process from producing an audit trail by which the specific clinical requirement for each item stocked can be determined and the quantity required can be assessed using anticipated casualty streams.

The Naval Health Research Center (NHRC), in the present study, has proposed a model of the Echelon I and II medical supply stream, which addresses the aforementioned constraints within the current AMAL review process. In the model, each medical supply item is linked to its specific clinical requirement. These clinical requirements are the domain of medical tasks conducted at the forward levels of care. Each clinical requirement is, in turn, mapped to the injuries and diseases known to occur in theater. In this approach, the anticipated casualty stream guides the selection of supplies required. The quantity of supplies stocked can be more accurately predicted because of the direct relationship established between what is stocked and what will be needed to treat each casualty anticipated to present at a theater Medical Treatment Facility (MTF). Furthermore, this process results in a readily identifiable audit trail linking each supply item stocked with its specific clinical requirement. In this way, the review process may be used more effectively for maintaining the AMAL blocks and for routinely updating the medical supply stream to reflect continuing changes in medical equipment technology.

## **Method**

To ensure tri-service utility, the NHRC model was designed to interface with the Echelons III and IV Deployable Medical Systems (DEPMEDS) model (DMSB, 1996). The DEPMEDS model, which consists of databases arranged in a relational structure named the Time, Task, Treater files, was developed to standardize medical materiel and to assemble it into sets so that each of the services could build different-sized medical facilities, according to its own unique requirements, using a common supply stream. The data in the DEPMEDS model are based upon treatment protocols for 319 Patient Conditions (PCs), each representing a grouping of closely related diagnoses, which are considered representative of the injuries expected to occur in theater (Galarza, 1987). To build upon

this existing standard, the structural characteristics of the NHRC model databases are compatible with those DEPMEDS Time, Task, Treater file databases. Because both the DEPMEDS and NHRC models share a common structural design, the two models can eventually be combined to produce a seamless methodology for projecting medical materiel requirements from the First through the Fourth Echelon.

### **NHRC Medical Supply Model**

The 319 DEPMEDS PCs formed the core around which the NHRC Echelon I and II model was constructed (see Appendix A for a complete list). The PCs were classified according to those resulting from (a) Wounded in Action (WIA), (b) Non-Battle Injuries (NBI), (c) Disease, (d) Battle Fatigue (BF), and (e) Female Specific. The PCs were further classified into 24 categories of injury/disease type. Injury/disease types, for example, included thoracic, spinal, abdominal/pelvic, dermatological, infectious/parasitic, etc.

Construction of the model began with the identification of the medical tasks associated with administering treatment at the three levels of care under investigation (Echelon Ia-Battlefield, Echelon Ib-Battalion Aid Station, and Echelon II-Surgical Company) and then mapping each of the tasks to the appropriate PC. This process produced a step-by-step treatment protocol for each PC which was used to assign the consumable and equipment requirements. Identification of the required tasks was conducted in cooperation with the Army's Medical Doctrine Development Center (AMEDD) Ft. Houston, TX. A partial list of Echelon II medical tasks, mapped to the PCs, was provided by AMEDD. This list provided the base upon which Echelon Ia, Ib, and II Marine Corps specific treatment protocols were constructed for each PC.

Treatment tasks for a Marine Corps Echelon II MTF remained to be identified for some key functional areas. For example, ward care tasks and operating room/anesthesia procedures required identification. Construction of the PC treatment protocols continued with the identification of treatment tasks requiring consumable or equipment supplies for these remaining Surgical Company functional areas. This was accomplished by consulting the DEPMEDS model. DEPMEDS Echelon III tasks, for each of the required functional areas (x-ray, operating room, ward care, and laboratory) were identified. This list of Echelon III tasks was then forwarded to Subject Matter Experts (SMEs) who were asked to review the tasks and select those which they knew to also be conducted at an Echelon II level Marine Corps MTF. The final list of Echelon II tasks, identified by the SMEs, were then remapped to each of the PCs. This resulted in a preliminary treatment protocol, broken down into the component tasks that require consumables or equipment, for each of the 319 PCs. Table 1

Table 1  
Echelon II Task List for PC 005: Cerebral Contusion with Intracranial Hematoma, Severe

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<b>Task Number</b>	<b>Task Description</b>
001	Triage
002	Assessment and Evaluation of Patient Status
006	Establish Adequate Airway
010	Neurological Assessment
011	Stabilize Neck (Collar/Spine Board)
014	Intubation
037	BVM Setup
023	O <sub>2</sub> Administration Continuous (Nasal/Mask)
024	Vital Signs
025	Cardiac Monitor Setup and Connect to Patient
028	Cardiac Arrest Resuscitation
032	Set Up Pulse Oximeter
035	Arterial Puncture
050	IV Infusion
061	IV Infusion Medications
069	Initiate Heparin Lock
071	Insert NG Tube
075	Irrigate NG Tube
244	Hemacult Test Feces Emesis Gastric Suction
079	Catheterization, Foley
082	Measure/Record Intake/Output
084	Shave and Prep
122	Eye Drops Instillation
126	Seizure Care/Precautions
127	Patient Restraint (Gauze, Mitts, Ties)
149	Blood Drawing Venous
595	Blood Gas Estimation
596	Electrolyte Levels (Na, K, Cl, CO <sub>2</sub> )
612	Complete Blood Count (CBC)
620	Urinalysis w/Specific Gravity
683	Cervical Spine Series (AP Open Mouth Lateral Both Obliques)
686	Skull Series (PA Both Laterals Chamber-Town Submen to Vertical)
693	Interpretation of Film Studies
344	Patient Preparation in the OR
351	OR Team Preparation (Surgical Hand Scrub)
530	Induce General Anesthesia
531	Maintain on General Anesthesia
403	Burr Hole Procedure
537	Recovery/Release from Anesthesia
748	Assemble Material/Clean Up
277	Prepare for Evac Ground/Air

---

shows an example of one of these protocols, in this case, the protocol for PC 005. Medical tasks not requiring medical consumables or equipment (e.g., Maintain on Cardiac Monitor) were not included in the protocols.

### **Data Collection**

The next phase in development of the model required SMEs, experienced in Echelon I and II medical care to (a) validate the treatment tasks and their assignments to the PCs, and (b) identify the appropriate consumable and equipment stream for each of the tasks. To achieve this objective, surveys were constructed for each of the PCs and mailed to SMEs with operational field medical experience.

**Subject matter experts.** Eighty-five medical professionals experienced in combat casualty care participated in the study. These SMEs were drawn from 12 Navy/Marine Corps commands, including the 1st, 2nd and 4th Medical Battalions; the 1st and 2nd Force Service Support Groups (FSSGs); 1st Marine Expeditionary Force (IMEF), Surgeon's Office, Camp Pendleton, CA; Marine Force Pacific (MARFORPAC), Health Services Division, Camp Smith, HI; Naval Medical Logistics Command, Fort Detrick, MD; Marine Corps Combat Development Command, Quantico, VA; Naval Hospitals Camp Pendleton, CA, and Camp Lejeune, NC; and Navy Medical Center, San Diego, CA. The medical specialities within this group of SMEs consisted of 35 physicians/surgeons, two physician's assistants, 15 nurses, 4 laboratory/x-ray technicians and 14 Independent Duty Corpsmen medical course instructors. All SMEs, except 2 surgeons and 2 nurses had significant theater operational experience in the administration of combat casualty care at the forward echelons.

**Procedures.** A total of 176 surveys, covering 176 of the PCs, were distributed to the SMEs. The 176 PCs were systematically selected from each of the 24 categories of injury type. Many of the PCs were similar clinically and did not vary in terms of the treatment that would be administered at an Echelon II MTF. For example, PC 001 presents a *cerebral contusion with/without a nondepressed linear skull fracture-severe*. PC 002 presents a *cerebral contusion with/without a non depressed linear skull fracture-moderately severe*. The treatment tasks required to stabilize these two PCs at Echelon II or further forward do not differ significantly. Because of the high degree of similarity between many of the PCs, survey data could sometimes be applied to more than one PC. Consequently, only one of each group of clinically similar PCs was surveyed thereby permitting the data from the 176 surveyed PCs to be applied to the remaining unsurveyed (clinically similar) PCs.

The surveys served two primary objectives. The first was to have the SMEs examine the tasks associated with each of the PCs. If required, they were to adjust the task profiles for each of the PCs to more closely reflect care rendered at the forward echelons. The second primary objective of the surveys was to have the SMEs identify the appropriate consumable and equipment supply stream required to administer the care for each of the treatment tasks at the forward echelons. A description of the methodology used in the surveys to achieve these objectives follows.

**Survey of treatment tasks.** Each survey consisted of the treatment tasks for a single PC. The treatment tasks were divided into the three levels of care under investigation (Ia, Ib and II). SMEs were asked to examine the treatment task lists for each of the levels of care and to indicate whether they felt each task was appropriate to both the PC and the level of care under consideration. Space was also provided for SMEs to add any tasks, not already listed on the survey, that they felt should be included as part of the PC treatment protocol.

**Survey of consumable items.** To obtain the consumable supplies required, SMEs assigned the materiel they needed to accomplish each of the treatment tasks. Each survey provided space adjacent to each of the tasks to indicate what consumables would be required to accomplish the task. SMEs repeated this procedure for each of the three levels of care.

Because a significant portion of the supply stream required standard items common to multiple tasks that would continue to be repeated throughout the surveys, an attempt was made to prerecord these types of items on the survey. By doing so, the time required to complete each survey could be significantly reduced because SMEs could check-off rather than write-in standard items, such as syringes, catheters, tubing, lubricant, etc.

**Survey of equipment items.** The final portion of each of the PC surveys required the SMEs to assign the equipment items they felt were needed to accomplish each of the identified tasks. In addition to equipment items which could be associated with a specific treatment task, they were also asked to indicate those that could only be assigned by PC and not by task. For example, no tasks existed for general equipment items, such as cots, supply chests, instrument trays, etc. Again, to reduce the time and tedium of completing the surveys, prerecorded items, which could be simply checked *yes* or *no*, were included in the PC surveys. In addition to identifying each item of equipment, SMEs were also asked to indicate in which Echelon and MTF functional area the equipment would be used.

A total of 77 (44%) of the 176 surveys were returned. This rate of return was achieved by initiating phone contact with each of the SMEs prior to sending them a survey to enlist their support as well as after they received the survey to encourage timely completion. As surveys were returned, face-to-face interviews with SMEs were conducted to refine the data and fill in blanks left in the surveys. The remainder of this paper will present the laboratory and x-ray findings of this study.

## Results and Discussion

### Laboratory Test Selection

The survey results showed that the SMEs identified a total of 32 different types of laboratory tests and assigned each of these tests to one or more PCs. To assure agreement among SMEs, this list of 32 tests was sent to 4 additional Navy surgeons with in-theater operational experience at the Second Echelon. These SMEs were asked to rate each of the 32 tests according to their value in assisting in the resuscitation/stabilization of casualties, reducing evacuations to higher levels of care, and maximizing returns to duty (RTDs). A three-point scale, with "1" representing a high score on these criteria and "3" a low score on the criteria, was used to rate the laboratory tests. Laboratory tests that received a mean score of 2.0 or below on these criteria, were included in the remaining analyses. This resulted in a final group of 25 laboratory tests (see Table 2).

Table 2  
Laboratory Tests Required at Echelon II

Blood Gas Estimation	Potassium Hydroxide (KOH) Preparation
Blood Glucose Level	Pregnancy Determination
Blood Type & Cross	Prothrombin Time
BUN Level	Rapid Strep Test (Throat)
Complete Blood Count	RPR Test for Syphilis
Examine Feces for Ova/Cysts/Parasites	Serum Bilirubin Level
Electrolyte Levels (Na, K, Cl, CO <sub>2</sub> )	Serum Creatinine Level
Gram Stain	SGPT Level
Hematocrit Level	Spinal Fluid Cell Count & Differential
Issue Packed RBCs	Thick & Thin Smear for Malaria
Microscopic Urinalysis	Urinalysis with Specific Gravity
Occult Blood Determination	White Blood Cell Differential Count
Partial Thromboplastin Time	

The next step in the analyses, to determine how the laboratory tests were distributed among the PCs, was accomplished by grouping each test into 1 of the 5 following categories: (a) hematology, (b) chemistry, (c) urinalysis, (d) blood bank, or (e) microbiology. Then, the 181 PCs that required laboratory tests were grouped according to the type of injury/disease they represented. The PC groups included: (a) battle fatigue, (b) disease, (c) non-surgical battle/non-battle injuries and (d) surgical battle/non-battle injuries. The frequency with which each group of laboratory tests was required within each of the PC groups was then determined. Figures 1-5 present the results.

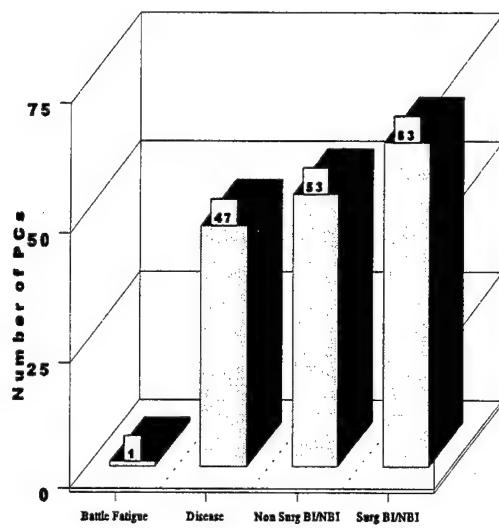


Fig 1. PC Type Distribution of Hematology Tests

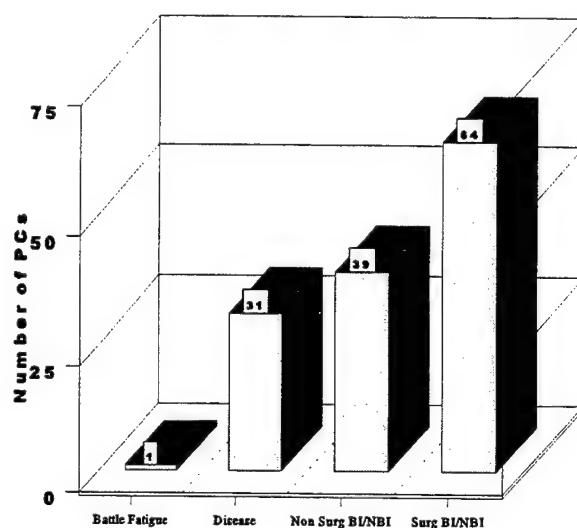


Fig. 2. PC Type Distribution of Chemistry Tests

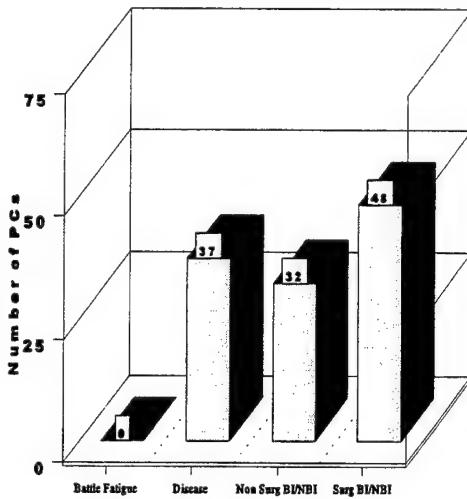


Fig. 3. PC Type Distribution of Urinalysis Tests

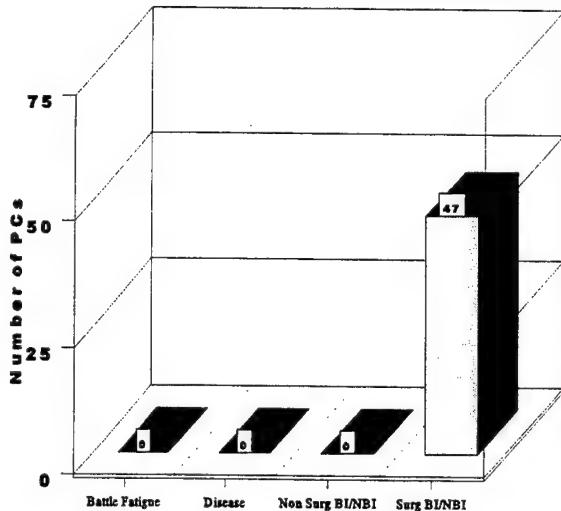


Fig. 4. PC Type Distribution of Blood Bank Tasks

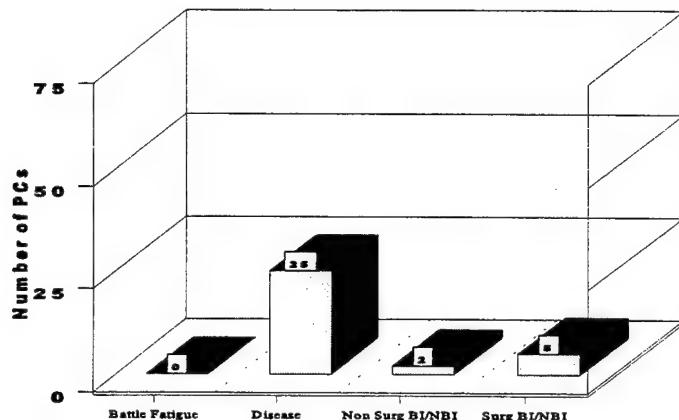


Fig. 5. PC Type Distribution of Microbiology Tests

It can be seen from Figures 1-5 that of the 181 PCs requiring at least one laboratory test, 164 of these required hematology tests (90%). This was followed by chemistry analyses, which were required by 135 of the 181 PCs (75%) requiring one or more laboratory tests. Fewer PCs required urinalyses (65%), blood bank (26%) and microbiology (18%). It can also be seen in the figures that, with the exception of the microbiology tests, the patient groups utilizing the most laboratory resources were the surgical and non-surgical battle/non-battle injury PCs. Furthermore, the findings demonstrate that PCs, which require immediate resuscitative/stabilizing surgical intervention, place the greatest demand on laboratory resources.

### **Laboratory Test Materiel Requirements**

Once the tests required at the Second Echelon had been identified and their relative impact on laboratory resources established, it was necessary to determine how adequately the existing Marine Corps laboratory supply AMALS were able to meet these requirements. This was accomplished by examining the current laboratory consumable AMAL 619 and the current equipment AMAL 618 and matching each component supply item to the laboratory test it is used to conduct. This process was important because it established the clinical requirement for each item in the laboratory AMALS.

Results of this analysis revealed that 4 of the tests identified by SMEs as valuable in providing Echelon II care could not be conducted because the materiel required to perform the test was not present in either AMAL 618 or 619. These tests are shown in Table 3.

Table 3  
Laboratory Tests Currently Unavailable at Echelon II

Rapid Strep Test	Serum Bilirubin Level
SGPT Level	Pregnancy Determination*

\*This test would not typically be conducted in the laboratory area

Furthermore, this analysis identified 33 equipment items in AMAL 618 and 19 items in the consumable AMAL 619 that were not used to conduct any required laboratory task and, therefore, possessed no known clinical requirement. Two possible explanations are proposed for these excess items. The first postulates that the excess equipment items are included in the current AMAL 618 because they are intended for laboratory tests which exceed an Echelon II level of care. The second postulates that the excess consumable items are intended for use with the excess equipment items and/or remained in the AMAL 619 when their associated equipment was either upgraded or replaced in the current equipment AMAL at some earlier date.

The preceding examination of the current Marine Corps laboratory supplies identified all the equipment/consumable items in the current supply stream that would be required to conduct the Echelon II laboratory tests identified by the SMEs. In the next phase of the analysis, all items not in the current supply stream that were required to conduct the tests identified by the SMEs were selected and related to their appropriate test. This new group of consumables and equipment consisted of those missing items necessary to conduct the tests listed in Table 3. Each new item was selected on its ability to meet Marine Corps field requirements and was obtained from the National Stock System, thereby yielding a National Stock reference Number (NSN) for tracking purposes. Where feasible, D-Day items, drawn from the approved DEPMEDS list of medical materiel, were used. Appendix B lists the complete equipment and consumable requirements for each of the 26 laboratory tests. Those items not previously in the laboratory consumable or equipment AMAL are indicated with an asterisk.

**Laboratory equipment AMAL requirements.** With each equipment item required to conduct all Echelon II laboratory tests identified and their clinical requirements established, the equipment AMAL 618 could then be configured. The number of laboratories to be established for each Surgical Company of the MEF is two. A total capability of 17 laboratories is defined for a notational MEF (Marine Corps Commandant message No. R-100105Z, SEP 96). The results of the present study

are presented in terms of the equipment requirements for the establishment of one of these laboratories. Table 4 shows the proposed AMAL 618, listing NSN, item nomenclature, quantity of item required, item weight, item cubic volume and total weight and total volume of the AMAL.

An examination of Table 4 shows, as expected, that only one of most items is required. This is consistent with the traditional philosophy of limiting most laboratory equipment items to a quantity of one. There are, however, 6 equipment items stocked in the proposed 618 that exceed a quantity of one. These are a laboratory centrifuge, a dry heat incubator, a table and chair, a multi-plug power strip and a test tube rack. Two centrifuges and two incubators were included because both the blood bank and urinalyses testing require these items. This allows the laboratory to maintain a higher level of performance without a significant increase in weight and cube. Three test tube racks were included for the temporary storage of incoming samples as processing is carried out, and the remaining items, 2 chairs, 2 tables and 2 power strips are included to permit the setup and operation of 2 work stations.

Table 4 also shows that the proposed AMAL 618 contains 41 individual items. This compares with 76 items for the current Marine Corps 618, representing a drop of 35 items (46.1%). More importantly, by establishing the clinical requirement for each item stocked the weight and cube have also been substantially reduced. The total weight in the proposed 618 is 732.4 pounds and the total volume is 91.6 cubic feet. This compares to 940.1 pounds and 101.1 cubic feet in the current Marine Corps 618. Using the approach presented in this paper, the proposed AMAL 618 is 207.7 pounds (28.4%) lighter and 9.6 cubic feet (10.4%) smaller than what is now carried.

**Laboratory consumable AMAL requirements.** Although the type of consumable items was identified, the number of each type of consumable was not calculated in the present study. Unlike equipment items, the quantity of each consumable item required is highly dependent upon the anticipated patient stream and will fluctuate according to the number of patients requiring laboratory services. In this study, the quantity of each type of consumable in the AMALS was not developed upon a particular patient stream. Therefore, only whether or not a consumable item is required has been investigated and reflected in the proposed consumable AMAL 619 list. The model discussed in this paper is, however, capable of identifying the amount of each consumable. To accomplish this requires the input of an anticipated patient stream. With the aid of patient-generating models, such as PATGEN (U.S. Army Medical Department Center and School), the distribution of PCs can be determined from the anticipated casualty stream. With a distribution of PCs as input to the NHRC medical supply model, both a list of consumable items and the specific amount of each item required

Table 4  
Proposed AMAL 618 - Laboratory/Blood Bank Equipment

NSN	Nomenclature	Quantity	Unit	Unit	Unit	Unit	Unit
			Issue	Weight	Cube		
6630012769462	Analyzer Module Clinical Chem Ektachem DT60	1	EA	1.0000	1.0000		
663001479532	Analyzer Carbon Dioxide Hand Operated	1	EA	0.0001	0.0989		
6630012346794	Analyzer Centrifugal Hematology 120/220V	1	EA	30.0000	5.5640		
6630012776342	Analyzer Clinical Chemistry Ektachem DT60	1	EA	25.0000	5.0000		
6630014151593	Analyzer Clinical Chemistry Piccolo	1	EA	15.0000	2.3400		
6640009821290	Beaker Lab Polyprop 400ML Cap Rating B1 Low	1	EA	0.2900	0.5800		
6640009338868	Burner Gas Lab Bunsen Liq Petroleum Gas	1	EA	0.3100	0.0180		
6640009309034	Centrifuge Lab SM Trunnion 115V 50/60Hz	2	EA	24.0000	2.0000		
6640012831435	Centrifuge Lab Battery Powered 9V	1	EA	60.0000	0.0369		
7110001941611	Chair Rotary Style AG12 w/Footrest Spider	2	EA	30.0000	18.7500		
6640004188010	Counter Blood Cells Differential	1	EA	5.8300	0.2500		
4610009762420	Demineralizer Water Ion Exchange 10W 6s	1	EA	8.0000	1.1111		
6515003343800	Forceps Hemostatic Kelly Curved 5.5IN	1	EA	0.1500	0.0100		
6640008897023	Funnel Common Lab Polyprop Ribbed 100MM	1	EA	0.1300	0.0320		
6630004277000	Hemacytometer Set Complete w/Case	1	SE	0.7000	0.5000		
5120009650326	Igniter Friction Wire Frame Round File	1	EA	34.5600	2.3040		
6640012870642	Incubator Dry Heat 25-115 Deg C 115/120V	2	EA	5.0000	1.0000		
6640011179692	Loop Inoculating Lab Round Tip 0.41MM	1	EA	0.0100	0.0010		
6650012070829	Microscope Optical Binocular 120/230V	1	EA	40.0000	5.4000		
5975011624448	Outlet Box 6LB 6 Place 120/230V 50/60Hz	2	EA	5.5000	0.1800		
6640004029250	Pan Biological Staining Rectangle 25.3x15CM	1	EA	1.6700	0.2400		
6640010444708	Pipet Blood Diluting Thomas Glass White Corp	1	PG	0.0300	0.0100		

6640010444707	Pipet Blood Diluting Thomas Glass w/o Tubing 12s	1	PG	0.0300	0.0100
6130010701500	Power Supply 115V 50/60Hz	1	EA	1.0000	0.0100
6640002998490	Rack Test Tube Laboratory 10x4.25x2.5IN	3	EA	1.0400	0.1150
6650009333218	Refractometer Hand Immersion Ty Alum 3 Scale	1	EA	1.0000	0.2170
4110012877111	Refrigerator Solid State Blood Products	1	EA	45.0000	1.0000
4110001156027	Refrigerator Mechanical Biologicals 115V	1	EA	110.0000	13.4071
6640011721132	Rotator Lab Variable Speed 120/230V	1	EA	8.0000	0.2010
7510001616215	Ruler Wood w/Bevel 12IN Sing Metal Edging	1	EA	0.0400	0.0010
5110002933444	Shears Straight Trimmers Heavy Duty 6IN	1	EA	0.1200	0.0120
6650009354247	Shield Optical Microscope Collapsible Vinyl	1	EA	0.1800	0.0200
6545013020228	Sink Unit Surgical Scrub Field Portable 115V	1	EA	70.0000	2.0000
7520002815895	Stapler Paper Fastening Office Desk Gray	1	EA	1.5000	0.0600
6530011896960	Sterilizer Surg. Instrument & Dressing 120/230V	1	EA	67.0000	2.4700
6515011405267	Stripper-Sealer-Cutter Blood Coll TU Handheld	1	EA	0.0100	0.0010
7105007100210	Table Folding Legs: Laboratory 72x20x30 Sty AR4	2	EA	30.0000	1.2500
6630011541697	Timer Blood/Plasma Coagulation 115V 60Hz	1	EA	10.0000	0.8220
6640011656692	Viewer Agglutination Test Tube 115V 60Hz	1	EA	3.5000	0.1000
6640002998493	Wash Bottle Lab 250ML Plastic 2.5IN	1	EA	0.2100	0.0310

**TOTAL WEIGHT =  $\Sigma$  (Quantity x Unit Weight) in pounds**  
**TOTAL CUBE =  $\Sigma$  (Quantity x Unit Cube) in cubic feet**  
 = = = = =

**732.3901**

**91.5630**

is produced. Identification of appropriate casualty streams and generation of specific consumable amounts are currently under investigation.

With each item required to conduct all Echelon II laboratory tests identified, the consumable AMAL 619 could also be configured. The final list of consumable items to be included in proposed AMAL 619 is presented in Table 5. As with the equipment AMAL, only items with an identified clinical requirement that could be related to a particular task conducted in the laboratory were included. It should be noted that the amount of each consumable item has been limited to a quantity of a single package based upon the primary unit of issue identified in the National Stock System. For example, the finger lancets are boxed in minimum packages of 100. A single package of lancets has been listed for AMAL 619.

After identifying the clinically relevant laboratory consumables, a comparison was conducted between the existing Marine Corps consumable AMAL 619 and the proposed consumable AMAL 619 to determine the difference between the two in terms of the number of items in each. A total of 91 items are currently stocked in AMAL 619. In comparison, the AMAL 619 proposed by NHRC is fully configured with a total of 81 items. By establishing the clinical requirement for each item in the proposed AMAL 619, the number of unique items needed was reduced by 9 (11.0%). Because consumables not included in the current 619 were added to the proposed 619 so that the 4 tests shown in Table 3 could be conducted, this reduction in required consumables was realized concurrent with a substantial increase in laboratory capability.

Table 5  
Proposed AMAL 619 - Laboratory/Blood Bank Consumables

NSN	Nomenclature	Unit Issue
6505001002470	Acetic Acid Glacial USP 1LB	BT
6515012346838	Applicator Disp Square Cotton/Poly Tip 6" L 100s	PG
8105011921904	Bag Biohazard Disposable Red/Orange 100s	PG
6515013723417	Bag Blood Collecting/Dispensing Disp 600ML 4s	PG
6530011075798	Bag Sterilization/Biohazard Disp 36x24IN 200s	PG

0102LF0159800	Blood Donor Card DD-572 100s	PG
6550013170288	Blood Grouping Serum Anti-A Liquid 10ML Vial 15s	PG
6550013438993	Blood Grouping Serum Anti-A & B Liquid 10ML 15s	BT
6550010572643	Blood Grouping Serum Anti-B Liquid 10ML USP	PG
6550010572575	Blood Grouping Serum Anti-D Liquid 10ML USP	BT
7530002223525	Book Memorandum 10.5x8IN Ruled 192 Pages	EA
6640006841345	Box Microscope Slide Plastic 25 Slides	EA
6640004097000	Bulb Dropping Pipet Rubber 3ML 12s	PG
6630012337594	Capillary Centrifugal Hematology TU 100s	PG
4610009215622	Cartridge H <sub>2</sub> O Demineralize Ion Exchange 6s	PG
6640009267674	Cartridge Lab Gas Burner Disp Nonrefill 156GR 6s	EA
6550011159182	Cephaloplastin Reagent 2ML 10s	PG
6515011405268	Clip Sealing Blood Collection 1000s	PG
6550013103236	Control Human Serum f/Dry Chem Abnormal	PG
6550013103237	Control Human Serum f/Dry Chem Normal	PG
6550010380792	Control Coagula Abnormal Citrated Lyoph 10s	BX
6550010380793	Control Coagula Normal Citrated Lyoph 10s	PG
6640006180066	Cover Glass Microscope Slide 22MM 1OZ	PG
6640011414800	Cuvette Blood Sample Plas Disp K31 1000s	PG
6530011832863	Disp Contain Hypodermic Needle & Syringe Plas.12s	PG
6550010754011	Fecal Specimen Collection/Preparation Kit 20s	PG
7540001818354	Form Printed Hematology 6.25x4IN 100s	HD
7540001818355	Form Printed Urinalysis 6.25x4IN 100s	HD
7540001818344	Form Printed Miscellaneous 6.25x4IN 100s	HD
6550001539968	Giemsa's Staining Solution 50ML 25GM 2s	PG
6515011502977	Gloves Patient Exam & Treat Plastic Disp LG 100s	PG
6630012309964	Holder Blood Collecting Tube Plas Polyprop 2.438IN	PG
6640002999807	Immersion Oil Microscopy 1OZ	BT
6550002619053	Kit Gram Staining	EA
7530010617772	Label Style A2 Pressure Sensitive 492INx19MM 12s	PG
6515004312890	Lancet Finger Bleeding 100s	PG
6640009351382	Mouthpiece Pipetting Plastic/Bone 12s	PG
6515010032368	Needle Hypodermic Ster Disp Mat 20GA 1000s	PG
6510007863736	Pad Isopro Alcohol Impregnated 2.6x1.8IN 100s	PG
6640009370760	Paper Lens Pad White Bibulous 6x4IN 12s	PG
7520009357136	Pen Ballpoint Retractable Med Pt Black	DZ
7510001743205	Pencil Red Glazed Extra Thick 6.25IN 12s	DZ
6640013598060	Pipet Bacteriological Disp 250s	PG
NO NSN	Pipet Lithium Heparinized	PG
6640010887108	Pipet Transfer 1.5ML Capacity Disp	PG

6630001267503	Pipet-Diluent Blood Lab Plastic .02ML 200s	PG
6810001366000	Potassium Hydroxide ACS 4OZ	BT
6505004917557	Povidone-Iodine Cleansing Sol USP 7.5% 4Fl Oz	BT
6550014354308	Reagent Rotor Piccolo General Health 11 Test	BX
6550014354309	Reagent Rotor Piccolo Liver Panel 08 Test	BX
6550012748514	Reference Standard Sol Sodium Potas Chl 4s	PG
6550012748513	Reference Standard/Dilut Set Blood Chem 3s	EA
7510002050842	Rubber Bands Size #33 .25LB	BG
6640010104122	Sealer-Holder Capill Tube Plastic Disp 6s	PG
7540001818359	SF546 Chem I (3 PT)	HD
6640000744191	Slide Microscope Plain Glass 25x75MM 72s	PG
6530000756636	Specimen Kit Urine 501 Components	PG
6510007822700	Sponge Surg Gauze Compressed 2x2IN White	PG
7510002729662	Staples Paper Fastening Office Type 5000s	BX
6550001464875	Sulfosal Acid Dihydrate Analyzed Reagent	BT
6550012724054	Test Kit Group A Strep	PG
6550013766541	Test Kit Human Chorionic Gonadotropin	EA
6550001656538	Test Kit Occult Blood Determination 100 Tests	EA
6550010230949	Test Kit Serum Carbon Dioxide Determination	EA
6550001595011	Test Kit Syphilis Detection 500 Tests	EA
6550012747317	Test Slide Carbon Dioxide Determination 25s	PG
6550012747216	Test Slide Chloride Determination 25s	PG
6550012747218	Test Slide Potassium Determination Disp 25s	PG
6550012747219	Test Slide Sodium Determination Disp 25s	PG
6550011225540	Test Strip/Color Urine Chemistry 100s	BT
6640011190013	Test Tube Style K12 5ML 75MM Disp 1000s	PG
6550013139610	Thromboplastin Test Reagent Liq. 10 ML/Vial 1000s	PG
6640009020810	Tip Pipet Style M28 Disp Plastic 1000s	PG
6640010689613	Tube Capillary Microhemocrit Glass K28 500s	PG
6515013851697	Tube Drain Surgical Penrose 7/8x12IN 200s	PG
6630011081444	Tube Blood Collecting Grn Cap 5ML w/Lith Hep 100s	PG
6630001451137	Tube Blood Collecting Glass 7ML Type II Size 2 100s	PG
6630011198575	Tube Blood Collecting Vacuum 7ML Solution 100s	PG
6630002504264	Tube Blood Collecting Type I Size 1 5ML 100s	PG
6630012337592	Tube Venous Centrifugal Hematology	PG
6550007644729	Wright' s Staining Solution Romanowski 1QT	BT

## X-Ray View Selection

An examination of the x-ray data gathered by the PC surveys showed that the SMEs identified 38 types of x-ray views that would be required at the Second Echelon. As with the laboratory tests, each x-ray view was assigned to an appropriate PC. Table 6 shows the x-ray views identified by the SMEs.

Table 6  
X-ray Views Required at Echelon II

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Skull Series	Wrist Series
Skull PA	Elbow Series
Skull Lateral	Forearm Series
Facial Bones	Humerus Series
Sinuses Waters	Shoulder Series
Mandible Series	Shoulder AP
Cervical Spine Series	Scapula Lateral
Thoracic Spine Series	Clavicle Series
Lumbar Spine Series	Foot Series
Sacro-Iliac Joint Series	Ankle Series
Chest AP/PA	Leg Tibia/Fibia Series
Chest Lateral	Knee Series
Abdomen Series	Knee AP
Abdomen (Supine)	Knee Lateral
Abdomen (Upright)	Femur Series
Gall Bladder Series	Hip Series
Cystogram	Pelvis AP
Urethrogram	Ilium Oblique
Hand Series	Interpretation of Film Studies*

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\*While not a view, this is included to show the complete list of tasks identified for x-ray.

Each of these views requires a varying amount of x-ray AMAL supplies to conduct. The primary determinant of resource usage is the number of films required to produce the view. The number of films required to produce the views listed in Table 6 range from a low of 2 (Skull Lateral) to a high of 12 (Knee Series). To determine how this variation in resources

would vary based upon type of patient stream encountered, the mean number of films for each of 4 PC categories was calculated. Figure 6 presents the results.

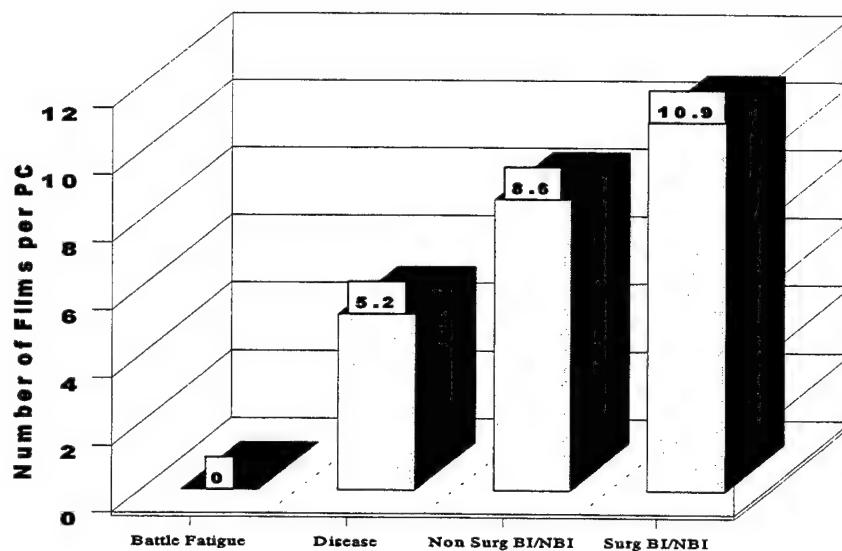


Fig. 6. Average number of films for each PC category

It can be seen from Figure 6 that the average number of films required per PC is highly related to injury severity. Clearly, the most films per PC are required for those casualties requiring a resuscitative/stabilizing surgical procedure prior to evacuation. These results suggest that during high levels of combat intensity, the x-ray facility should be stocked to handle a minimum of 10 films per patient.

#### **X-Ray View Materiel Requirements**

Once the views required at the Second Echelon had been identified and their relative impact on x-ray resources established, it was necessary to determine how adequately the current Marine Corps x-ray AMALS were able to meet these requirements. This was accomplished by examining the current x-ray equipment AMAL 627 and the current x-ray consumable AMAL 649 and matching each item within these 2 supply blocks with the film view requiring the item. This process was important because it established the clinical

requirement for each item. Appendix C lists the 38 x-ray tasks and the consumables and equipment required to conduct them.

Results of this analysis revealed that the current Marine Corps x-ray AMALS were capable of producing each of the film views identified by the SMEs. The results further showed 2 items for which a clinical requirement could not be identified and therefore could be considered excess items.

**X-ray equipment AMAL requirements.** With each equipment item required to conduct all Echelon II x-ray tasks identified and their clinical requirements established, the x-ray equipment AMAL 627 could then be configured. The number of x-ray suites to be established for each Surgical Company of the MEF is 2. A total capability of 17 x-ray suites is defined for a notational MEF (Marine Corps Commandant message No. R-100105Z, SEP 96). The results of the present study are presented in terms of the equipment requirements for the establishment of one of these x-ray suites. Table 7 shows the proposed AMAL 627, listing NSN, item nomenclature, quantity of each item required, weight of item, cube of item and total weight and cube of the AMAL.

It can be seen from Table 7 that the quantity of each item stocked in the proposed AMAL 627 provides the capability to conduct each of the 38 x-ray tasks identified by the SMEs. The proposed AMAL 627 contains 20 unique items, representing a reduction of 1 item (5%). Because a clinical requirement could not be found, the quantity of some of the items was also reduced. The effect of these reductions are reflected in the weight and cube of the proposed 627. Table 7 shows that the total weight of the proposed 627 is 863.38 pounds and the total cube is 156.63. This compares to 1002.72 pounds and 163.43 cubic feet in the current 627. By establishing the clinical requirement for each item, the proposed AMAL 627 is 139.34 pounds (13.9%) lighter and 6.8 cubic feet smaller (4.2%) than the current Marine Corps AMAL.

**X-ray consumable AMAL requirements.** With each item required to conduct all Echelon II x-ray tasks identified, the consumable AMAL 649 could also be configured. The final list of consumable items to be included in proposed AMAL 649 are presented in Table 8. As with the equipment AMAL, only items with an identified clinical requirement that could

Table 7  
Proposed Marine Corps X-Ray Equipment AMAL 627

NSN	Nomenclature	Quantity	Unit	Unit Weight	Unit Cube
6532009359765	Apron X-ray Protective Coat 38x24 Lt Weight	2	EA	9.00	0.848
6525013599304	Bottle Waste X-ray Processor 5 GL Capacity	2	EA	3.50	0.030
6525006007900	Caliper X-ray Technique L-shape Aluminum	1	EA	0.94	0.178
6525014280199	Cassette Radiographic Film w/Lanex 24x30CM	6	EA	4.50	0.109
6525014280220	Cassette Radiographic Film 35x43CM	6	EA	8.33	0.220
6525013456090	Chamber X-ray Film Processing Darkroom	1	EA	30.00	14.700
6525006031250	Grid Radio 10x12 Linear Focused Type Str Wafer	2	EA	7.67	0.250
6525006031310	Grid Radio 14x17 Linear Focused Type Str Wafer	2	EA	12.00	0.400
6665002999825	Holder Radiac Detecting Element Steel Style 12C	12	EA	0.15	0.003
6525011608381	Illuminator X-ray Film Fluorescent Illuminated	1	EA	25.00	1.477
6240005833668	Lamp Fluorescent 15 Watts	8	EA	0.00	0.00
6240007818291	Lamp Incandescent 11 Watts	4	EA	0.00	0.00
6650005143531	Magnifier Glass Monocular 1xNomial Circular 4IN	1	EA	0.30	0.022
6525006080620	Marker Set X-ray Film Identification Gothic Letter	1	SE	14.17	0.342
6525013862603	Processing Machine Rad Film Auto Table Top	1	EA	149.00	91.800
6525006127500	Rule Anatomical Transparent 2x18	1	EA	0.06	0.010
6525011669033	Screen X-ray Protective Mobile 6x2.5 FT	1	EA	0.16	5.473
6525012205078	Table Radiographic Portable Adj 72x27	1	EA	200.00	37.020
6685006167950	Thermometer Self-Indicating Bimetallic 8.5IN	1	EA	0.63	0.052
6525012005800	X-ray Apparatus Radio Port 25-40MA Low Cap	1	EA	300.00	0.500
<b>TOTAL WEIGHT = <math>\Sigma</math> (Quantity x Unit Weight) in pounds</b>				<b>=</b>	<b>863.38</b>
<b>TOTAL CUBE = <math>\Sigma</math> (Quantity x Unit Cube) in cubic feet</b>				<b>=</b>	<b>156.63</b>

Table 8  
Proposed Marine Corps X-Ray Consumable AMAL 649

NSN	Nomenclature	Unit Issue
6525013274196	Additive Developer X-ray Film 5 Fl Oz	BT
6510002035000	Adhesive Tape Surgical 3INx5YD	RL
6525013507762	Developer X-ray Film Processing Liquid 12s	PG
6505010083323	Diatrizoate Meglumine & Diatrizoate Sodium	PG
7530006124000	Envelope Photographic Negative 17.5x14.5 100s	HD
6525013548682	Film Radiographic Kodak T-Mat H/Ra 24x30CM 100s	PG
6525013706249	Film Radiographic Kodak T-Mat H/Ra 35x43CM 100s	PG
6525013505966	Fixer X-ray Film Processing 18s	PG
7540006344160	Form Printed Radiographic Rpt 8x10.5 100s	HD
6525008807257	Label X-ray Film Identification Pressure Sensitive	PG
6515007542838	Needle Hypo C13A GP 21GA 1.185-1.312" Luer	PG
6515012899839	Syringe Irrigating Surg Disp 60ML 60s	PG
6515011534851	Syringe Luer Plas Disp Reg Luer Tip 60 ML	BX

be related to a particular task conducted in x-ray were included. It should be noted that the amount of each consumable item has been limited to a quantity of a single package based upon the primary unit of issue identified in the National Stock System.

Although the type of consumable items was identified, the number of each type of consumable, as with the laboratory consumable AMAL was not calculated in the present study. As previously indicated, the consumable supply stream is highly dependent upon the anticipated casualty stream. The effects of estimating consumable requirements using an anticipated casualty stream will be presented in a future paper.

After identifying the clinically relevant consumable items, a comparison was conducted between the existing Marine Corps consumable AMAL 649 and the proposed 649. A total of 14 items are currently stocked in the 649. This compares to 13 in the proposed 649, representing a drop of only 1 item (7.1%).

The findings regarding the x-ray AMALS showed a smaller benefit using the NHRC model than those realized in the laboratory AMAL. This difference in the magnitude of findings can be explained by examining recent events regarding the configuration of the x-ray

AMALS. Citing findings revealed in Operation Desert Shield/Storm, the Marine Corps, in conjunction with the DMSB, embarked on an effort to fully upgrade the x-ray AMALS with state-of-the-art x-ray imaging devices and automatic daylight film processors. By doing so, the x-ray AMALS were greatly enhanced just prior to the completion of this study.

While the state-of-the-art equipment upgrades initiated by the DMSB/Marine Corps significantly enhanced the capability of the second Echelon x-ray function, SMEs in the NHRC study suggested additional modifications to the supply stream that could improve x-ray performance even further. When the new imaging devices and film processors were added to the x-ray AMALs, no corresponding changes were made to the film or to the film cassettes. While the current film and cassettes will work with the new equipment, a better match between these items and the new equipment would be desirable. Because the new x-ray apparatus is a low capacity model, double exposures would be required if the current film and cassettes remain. This will result in a degradation of exposure quality. To realize the maximum performance of the new x-ray apparatus, the NHRC proposed x-ray AMALS reflect an upgrade to film cassettes with "rare earth" screens and compatible film. Since the new film and cassettes were simply substituted for the old, no changes in weight or cube resulted.

### **Conclusions**

This study's results clearly demonstrate the effectiveness of the NHRC model. The logistical load was lightened for forward units with no decrease in medical capability. In some cases, the medical capability was enhanced. The key factor responsible for this increased logistical efficiency is the identification of the clinical requirement of each and every item carried forward. Since this process also required documentation of the medical tasks to be performed forward, commanders, care providers and medical planners can achieve a higher level of preparedness through a greater awareness of what can be expected to be medically required across the range of potential battle injuries, diseases and non-battle injuries.

Furthermore, the process of establishing the clinical requirement for each supply item produced an audit trail, which, for the first time, gives logisticians and medical planners an objective management tool for maintaining and upgrading AMAL Class VIII medical materiel. The current management system relies upon periodic reviews to ensure the materiel stocked in the AMALs will adequately meet medical requirements. This process benefits from the participation of experienced SMEs, however, the criteria for determining

supply requirements depends upon a subjective interpretation of need. For example, in determining the supply requirements for the laboratory AMALs, SMEs are currently unable to rely upon an empirically established link between medical items and laboratory tasks and laboratory tasks and injury types. Instead, they develop materiel estimates upon what they perceive will be required by 100 generic patients. By providing an audit trail for each item, the supply requirements are clearly linked to the medical task requiring them. As medical technology changes, items may be added or deleted from the AMALs with greater assurance that the weight and cube will not exceed requirements.

The results presented in this paper do not adequately reflect the full capability of the NHRC design. The model has been sufficiently exercised to demonstrate its potential in reducing the logistical burden carried by forward Marine Corps units. Planned upgrades to the model, currently under development, will substantially increase its potential utility. This additional utility will be realized when the model not only produces the type of consumables required forward, as it now does but, when it can also predict the quantity of each type of consumable.

To do this requires inputting the anticipated casualty stream at the front-end of the model. Using a patient generator, such as PATGEN, a distribution of PCs can be produced from parameters describing the number of persons at risk, the mix of troops, the rate of escalation of troop strength as build-up proceeds, and geographical location of the conflict. The PC distribution yielded includes rates of injuries at each of the forward areas (Ia, Ib and II), expressed in the DEPMEDS codes used in the present study. Because the NHRC model expresses supply requirements in terms of PCs, the PC distribution may be fed into the model to produce the specific quantity of consumables a particular conflict is expected to draw. As this work nears completion, the NHRC model will be capable of predicting the full complement of Marine Corps medical materiel requirements based upon established clinical requirements.

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Appendix A - DEPMEDS Patient Condition List

PC#	DESCRIPTION
001	Cerebral concussion closed with/without nondepressed linear skull fracture severe - loss of consciousness from 2 to 12 hours
002	Cerebral concussion closed with/without nondepressed linear skull fracture moderate - loss of consciousness less than 2 hours
003	Cerebral contusion closed with/without nondepressed linear skull fracture severe - loss of consciousness greater than 24 hours with focal neurological deficit
004	Cerebral contusion closed with/without nondepressed linear skull fracture moderate - loss of consciousness from 12-24 hours without focal neurological deficit
005	Cerebral contusion closed with intracranial hematoma with/without nondepressed linear skull fracture - severe - large hematoma (including epidural hematoma) with rapidly deteriorating comatose patient
006	Cerebral contusion closed with nondepressed linear skull fracture severe - loss of consciousness greater than 24 hours with/without focal neurological deficit
007	Cerebral contusion closed with depressed skull fracture severe - with associated intracerebral hematoma and/or massive depression
008	Cerebral contusion closed with depressed skull fracture moderate - no associated hematoma or significant effect from depression
009	Cerebral contusion with open skull fracture severe - with intracranial fragments and/or depressed skull fracture; eyelid and eyeball laceration with retained intraocular foreign body
010	Cerebral contusion with open skull fracture moderate - without intracranial fragments and/or depressed skull fracture
011	Intracranial hemorrhage spontaneous nontraumatic all cases
012	Not assigned
013	Wound scalp open without cerebral injury or skull fracture severe - scalped with avulsion of tissue
014	Wound scalp open without cerebral injury or skull fracture moderate - scalp laceration
015	Fracture facial bones closed exclusive of mandible severe - multiple fractures
016	Fracture facial bones closed exclusive of mandible moderate - single fracture
017	Wound face jaws and neck open lacerated with associated fractures excluding spinal fractures severe - with airway obstruction
018	Wound face jaws and neck open lacerated with associated fractures excluding spinal fractures moderate - without airway obstruction; eyelid and eyeball laceration with retained intraocular foreign body

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019 Wound face and neck open lacerated contused without fractures severe - with airway obstructions and/or major vessel involvement  
020 Wound face and neck open lacerated contused without fractures moderate - without airway obstruction or major vessel involvement  
021 Eye wound severe - loss of intraocular fluid with/without retinal detachment, with severe lid laceration, eye not salvageable  
022 Eye wound lacerated moderate - without retinal detachment or retinal injury no foreign body retained without loss of vitreous fluid patient has hyphema eye salvageable  
023 Hearing impairment severe  
024 Hearing impairment moderate  
025 Fracture spine closed without cord damage unstable lesion  
026 Fracture spine closed without cord damage stable lesion  
027 Fracture spine closed with cord damage cervical spine with respiratory involvement  
028 Fracture spine closed with cord damage below cervical spine (progressive)  
029 Fracture spine open with cord damage cervical spine with respiratory involvement  
030 Fracture spine open with cord damage below cervical spine (progressive)  
031 Intervertebral disc disorders with nerve root compression resistant to bed rest/traction  
032 Intervertebral disc disorders with nerve root compression responding to bed rest/traction  
033 Strains and sprains sacroiliac region severe - nonambulatory  
034 Strains and sprains sacroiliac region moderate - ambulatory  
035 Burn thermal superficial head and neck greater than 5% but less than 10% of total body area and/or eye involvement  
036 Burn thermal superficial head and neck less than 5% of total body area and no eye involvement  
037 Burn thermal partial thickness head and neck greater than 5% but less than 10% of total body area and/or eye involvement  
038 Burn thermal partial thickness head and neck less than 5% of total body area and no eye involvement  
039 Burn thermal full thickness head and neck greater than 5% but less than 10% of total body area with eye involvement  
040 Burn thermal full thickness head and neck less than 5% of total body area and no eye involvement  
041 Fracture clavicle closed all cases

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042 Wound shoulder girdle open with bone injury severe - joint involvement  
043 Wound shoulder girdle open with bone injury moderate - no joint involvement  
044 Fracture humerus closed upper shaft all cases  
045 Wound upper arm open penetrating lacerated without fracture severe - with nerve and/or vascular injury  
046 Wound upper arm open penetrating lacerated without fracture moderate - without nerve or vascular injury  
047 Wound upper arm open with fractures and nerve and vascular injury arm nonsalvageable  
048 Wound upper arm open with fractures and nerve injury no vascular injury arm salvageable  
049 Fracture radius and ulna closed severe - shafts of bones  
050 Fracture radius and ulna closed moderate - colles fracture  
051 Wound forearm open lacerated penetrating without bone nerve or vascular injury with major loss of muscle tissue severe - requiring major debridement  
052 Wound forearm open lacerated penetrating without bone nerve or vascular injury moderate - not requiring major debridement  
053 Wound forearm open lacerated penetrating with fracture and with nerve and vascular injury forearm not salvageable  
054 Wound forearm open lacerated penetrating with fracture and with nerve and vascular injury forearm salvageable  
055 Fracture hand or fingers closed severe - requiring closed reduction  
056 Fracture hand and/or fingers closed moderate - not requiring closed reduction  
057 Wound hand and/or fingers open lacerated without fractures severe - superficial and deep tendon involvement  
058 Wound hand and/or fingers open lacerated without fractures moderate - no tendon involvement or limited to sublimis tendon involvement  
059 Wound hand open lacerated contused crushed with fracture(s) all cases - involving fractures of carpal and/or metacarpals  
060 Wound fingers open lacerated contused crushed with fracture(s) of phalangeals requiring rehabilitation  
061 Crush injury upper extremity severe - limb not salvageable  
062 Crush injury upper extremity moderate - limb salvageable  
063 Not assigned  
064 Dislocation shoulder closed all cases  
065 Dislocation/fracture elbow closed acute all cases

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066	Not assigned
067	Dislocation hand or wrist closed acute
068	Dislocation fingers closed acute
069	Amputation hand traumatic complete all cases
070	Amputation forearm traumatic complete all cases
071	Amputation full arm traumatic complete all cases
072	Sprain wrist closed acute all cases
073	Sprain thumb closed acute severe
074	Sprain fingers closed acute moderate - no thumb involvement
075	Burn thermal superficial upper extremities greater than 10% but less than 20% of total body area involved
076	Burn thermal superficial upper extremity less than 10% of total body area involved
077	Burn thermal partial thickness upper extremities greater than 10% but less than 20% of total body area involved
078	Burn thermal partial thickness upper extremity less than 10% of total body area involved
079	Burn thermal full thickness upper extremities greater than 10% but less than 20% of total body area involved
080	Burn thermal full thickness upper extremity less than 10% of total body area involved
081	Fracture ribs closed severe - multiple fractures
082	Fracture rib(s) closed moderate
083	Injury lung closed (blast crush) with pneumothorax severe - one lung with pulmonary contusion and acute severe respiratory distress
084	Injury lung closed (blast crush) with pneumothorax moderate - one lung with pulmonary contusion and respiratory distress
085	Wound thorax (anterior or posterior) open superficial lacerated contused abraded avulsed requiring major debridement
086	Wound thorax (anterior or posterior) open superficial lacerated contused abraded avulsed not requiring major debridement
087	Wound thorax (anterior or posterior) open penetrating with associated rib fractures and pneumothorax acute severe respiratory distress
088	Wound thorax (anterior or posterior) open penetrating with associated rib fractures and pneumothorax moderate respiratory distress

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089 Not assigned

090 Burn thermal superficial trunk greater than 20% but less than 30% of total body area involved

091 Burn thermal superficial trunk greater than 10% but less than 20% of total body area involved

092 Burn thermal partial thickness trunk greater than 20% but less than 30% of total body area involved

093 Burn thermal partial thickness trunk greater than 10% but less than 20% of total body area involved

094 Burn thermal full thickness trunk greater than 20% but less than 30% of total body area involved

095 Burn thermal full thickness trunk greater than 10% but less than 20% of total body area involved

096 Wound abdominal wall (anterior or posterior) lacerated abraded contused avulsed without entering abdominal cavity severe - requiring major debridement

097 Wound abdominal wall (anterior or posterior) lacerated abraded contused avulsed without entering abdominal cavity not requiring major debridement

098 Wound liver closed acute (crush fracture) major liver damage

099 Wound liver closed acute (crush fracture) minor liver damage

100 Wound spleen closed acute (crush fracture) all cases

101 Wound abdominal cavity open with lacerating penetrating perforating wound to the large bowel

102 Wound abdominal cavity open with lacerating penetrating perforating wound to the small bowel without major or multiple resections

103 Wound abdominal cavity open with penetrating perforating wound of liver major damage

104 Wound abdominal cavity open with penetrating perforating abdominal wound with lacerated liver

105 Wound abdominal cavity open with penetrating perforating wound of spleen

106 Wound abdominal cavity open with lacerated penetrated perforated wound with shattered kidney

107 Wound abdominal cavity open with lacerated penetrating perforating wound with lacerated kidney initially repaired but subsequent nephrectomy

108 Wound abdominal cavity open with lacerated penetrating perforating wound with shattered bladder

109 Wound abdominal cavity open with lacerated penetrating perforating wound with lacerated bladder

110 Wound buttocks severe - open lacerated penetrating perforating and avulsed

Appendix A - DEPMEDS Patient Condition List

111 Wound buttocks moderate - open lacerated contused and abraded  
112 Displaced fracture of pelvis closed with associated soft tissue damage and pelvic organ damage  
113 Nondisplaced fracture of pelvis closed with associated soft tissue damage  
114 Wound abdomen open with pelvic fracture and penetrating perforating wounds to multiple pelvic structures (male or female)  
115 Wound abdomen open with pelvic fracture and penetrating perforating wounds to pelvic colon only (male or female)  
116 Wound external genitalia male severe - lacerated avulsed crushed  
117 Wound external genitalia male moderate - abraded and contused  
118 Wound external genitalia female severe - lacerated avulsed crushed  
119 Wound external genitalia female moderate - abraded contused  
120 Fracture closed femur shaft all cases  
121 Wound thigh open without fracture nerve or vascular injury requiring major debridement  
122 Wound thigh open without fracture nerve or vascular injury not requiring major debridement  
123 Wound thigh open lacerated penetrating perforating with fracture and nerve/vascular injury limb not salvageable  
124 Wound thigh open lacerated penetrating perforating with fracture and nerve and/or vascular injury limb salvageable  
125 Wound knee open lacerated penetrating perforating with joint space penetration shattered knee  
126 Wound knee open lacerated penetrating perforating with joint space penetration articular cartilage damage no bone injury  
127 Fracture closed tibia and fibula shaft all cases  
128 Wound lower leg open lacerated penetrating perforating without fractures requiring major debridement  
129 Wound lower leg open lacerated penetrating perforating without fractures not requiring major debridement  
130 Wound lower leg open lacerated penetrating perforating with fracture and nerve/vascular injury limb not salvageable  
131 Wound lower leg open lacerated penetrating perforating with fracture and nerve and/or vascular injury limb salvageable  
132 Fracture ankle/foot closed displaced requiring reduction  
133 Fracture ankle/foot closed nondisplaced not requiring reduction  
134 Wound ankle foot toes open lacerated contused without fractures but requiring major debridement  
135 Wound ankle foot toes open lacerated contused without fractures not requiring major debridement  
136 Wound ankle foot toes open penetrating perforating with fractures and nerve/vascular injury limb not salvageable

**Appendix A - DEPMEDS Patient Condition List**

137 Wound ankle foot toes open penetrating perforating with fractures and nerve and/or vascular injury limb salvageable  
138 Crush injury lower extremity limb not salvageable  
139 Crush injury lower extremity limb salvageable  
140 Dislocation hip closed acute all cases  
141 Tear ligaments knee acute complete rupture  
142 Tear ligaments knee acute incomplete rupture  
143 Dislocation toes closed acute all cases  
144 Amputation foot traumatic complete all cases  
145 Amputation below knee traumatic complete all cases  
146 Amputation traumatic complete requiring hip disarticulation  
147 Amputation above knee traumatic complete  
148 Sprain ankle closed acute with complete ligament rupture  
149 Sprain ankle closed acute grade 2 incomplete ligament rupture  
150 Burn thermal superficial lower extremities and genitalia greater than 30% but less than 40% of total body area involved  
151 Burn thermal superficial lower extremity and genitalia greater than 15% but less than 30% of total body area involved  
152 Burn thermal partial thickness lower extremities and genitalia greater than 30% but less than 40% of total body area involved  
153 Burn thermal partial thickness lower extremity and genitalia greater than 15% but less than 30% of total body area involved  
154 Burn thermal full thickness lower extremities and genitalia greater than 30% but less than 40% of total body area involved  
155 Burn thermal full thickness lower extremity and genitalia greater than 15% but less than 30% of total body area involved  
156 Blisters hand fingers foot toes due to friction acute moderate all cases  
157 Insect bites and stings (unspecified body area) with systemic symptoms and/or respiratory difficulty  
158 Bites and stings (unspecified body area) moderate localized symptoms  
159 MIW brain and chest with sucking chest wound and pneumothorax  
160 MIW brain and abdomen with penetrating perforating wound colon  
161 MIW brain and abdomen with penetrating perforating wound kidney  
162 MIW brain and abdomen with penetrating perforating wound bladder

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163 MIW brain and abdomen with shock and penetrating perforating wound spleen

164 MIW brain and abdomen with shock and penetrating perforating wound liver

165 MIW brain and lower limbs requiring bilateral above knee amputations

166 MIW chest with pneumothorax and abdomen with penetrating wound colon

167 MIW chest with pneumothorax and abdomen with penetrating perforating wound kidney

168 MIW chest with pneumothorax and abdomen with perforating wound bladder

169 MIW chest with pneumothorax and abdomen with penetrating perforating wound spleen

170 MIW chest with pneumothorax and abdomen with penetrating perforating wound liver

171 MIW chest with pneumothorax and limbs with fracture and vascular injury

172 MIW abdomen with penetrating perforating wound of colon and bladder

173 MIW abdomen with penetrating perforating wound of colon and spleen

174 MIW abdomen with penetrating perforating wound of colon and liver

175 MIW abdomen and limbs with fracture and nerve injury with penetrating perforating wound of colon and open fracture and neurovascular injury of salvageable lower limb

176 MIW abdomen and pelvis with penetrating perforating wound of liver and kidney

177 MIW abdomen and pelvis with penetrating perforating wounds of spleen and bladder

178 MIW abdomen pelvis limbs with fracture and neurovascular injury limb salvageable and penetrating wound kidney

179 MIW abdomen pelvis limbs without fracture or neurovascular injury and penetrating perforating wound bladder

180 MIW abdomen and lower limbs with fracture and nerve injury with penetrating wound of spleen with full thickness burns to greater than 20% of TBSA

181 MIW abdomen and limbs without fracture or nerve injury with penetrating wound of liver

182 MIW chest with pneumothorax soft tissue injury to upper limbs and penetrating wound of brain

183 MIW chest with pneumothorax soft tissue injury to upper limbs and abdomen with wound of colon

184 MIW chest with pneumothorax pelvis and abdomen with wound of colon and bladder

185 MIW abdomen and chest with multiple organ damage

186 Multiple nonperforating fragment wounds of skin and soft tissue

**Appendix A - DEPMEDS Patient Condition List**

187	Trench foot immersion foot severe - vesicle formation
188	Trench foot immersion foot moderate - no vesicle formation
189	Not assigned
190	Frostbite full skin thickness or deeper involvement
191	Frostbite less than full skin thickness
192	Hypothermia all cases
193	Heat stroke
194	Heat exhaustion
195	Heat cramps all cases
196	Appendicitis acute with perforation rupture peritonitis
197	Appendicitis acute without perforation rupture peritonitis
198	Inguinal hernia complicated direct or indirect sliding incarceration of bowel
199	Inguinal hernia uncomplicated direct or indirect no sliding no incarceration of bowel or bladder
200	Internal derangement of knee chronic with torn meniscus and/or ligament laxity
201	Strain lumbosacral sacroiliac joint chronic all cases
202	Eczema dermatitis seborrheic contact others affecting weight bearing or pressure areas
203	Eczema dermatitis seborrheic contact others not affecting weight bearing areas
204	Boils furuncles pyoderma requiring surgery
205	Boils furuncles pyoderma all other cases
206	Cellulitis involving face or weight bearing areas
207	Cellulitis other than face or weight bearing areas
208	Dermatophytosis severe - affecting feet
209	Dermatophytosis all other cases
210	Pediculosis all cases
211	Scabies all cases
212	Pilonidal cyst/abscess requiring major excision

Appendix A - DEPMEDS Patient Condition List

213 Pilonidal cyst/abscess requiring minor incision  
214 Ingrown toenails bilateral with secondary infections unresolvable at Echelon 2  
215 Ingrown toenails without secondary infection  
216 Herpes simplex and zoster without encephalitis all types all cases  
217 Not assigned  
218 Not assigned  
219 Hyperhidrosis all cases  
220 Blepharitis all cases  
221 Conjunctivitis severe all cases  
222 Conjunctivitis moderate all cases  
223 Corneal ulcer  
224 Corneal abrasion  
225 Iridocyclitis acute marked visual impairment  
226 Iridocyclitis acute minimal visual impairment  
227 Refraction and accommodation disorders refraction required  
228 Refraction and accommodation disorders replacement of spectacles required  
229 Otitis externa all cases  
230 Otitis media acute suppurative all cases  
231 Mastoiditis chronic all cases  
232 Allergic rhinitis all cases  
233 Upper respiratory infections acute all cases  
234 Bronchitis acute all cases  
235 Asthma with disabling symptoms or repeated attacks  
236 Asthma other cases  
237 Not assigned  
238 Not assigned

**Appendix A - DEPMEDS Patient Condition List**

239	Acute respiratory disease severe
240	Acute respiratory disease moderate
241	Not assigned
242	Not assigned
243	Food poisoning all organisms disabling symptoms
244	Food poisoning all organisms moderate symptoms
245	Diarrheal disease severe
246	Diarrheal disease moderate
247	Not assigned
248	Gastritis acute all cases
249	Peptic ulcer gastric or duodenal penetrating and/or perforating
250	Peptic ulcer gastric or duodenal uncomplicated
251	Regional ileitis disabling symptoms unresponsive to treatment
252	Regional ileitis responds to treatment
253	Helminthiasis all cases
254	Not assigned
255	Migraine all cases
256	Hemorrhoidal disease all cases
257	Not assigned
258	Severe hypertension
259	Ischemic heart disease
260	Phlebitis deep vein involvement
261	Not assigned
262	Tenosynovitis elbow wrist shoulders etc.
263	Meningo-encephalitis uncomplicated
264	Meningo-encephalitis complicated

Appendix A - DEPMEDS Patient Condition List

265 Near drowning without cervical spine injury or hypothermia all cases  
266 Toxic inhalation including burn-related respiratory injuries severe all cases  
267 Not assigned  
268 White phosphorus burns resultant partial thickness burns < 40% TBSA all cases  
269 Sexually transmitted diseases (STD) urethritis  
270 Sexually transmitted diseases (STD) genital ulcers and/or adenopathy  
271 Sexually transmitted diseases (STD) complicated  
272 Glomerulonephritis acute  
273 Glomerulonephritis chronic  
274 Pyelonephritis acute secondary to obstruction  
275 Pyelonephritis acute no obstruction  
276 Nephrotic syndrome all cases  
277 Ureteral calculus causing obstruction impacted  
278 Ureteral calculus not causing obstruction  
279 Epididymitis cystitis prostatitis acute all cases  
280 Balanoposthitis all cases  
281 Not assigned  
282 Infectious mononucleosis all cases  
283 Hepatitis infectious viral all cases  
284 Not assigned  
285 Cholecystitis acute with stones all cases  
286 Pancreatitis acute all cases  
287 Cirrhosis all cases  
288 Not assigned  
289 Neoplasms malignant  
290 Neoplasms benign

Appendix A - DEPMEDS Patient Condition List

291	Abnormal uterine bleeding
292	Dysmenorrhea amenorrhea
293	Pelvic inflammatory disease (PID) all cases
294	Cervicitis endocervicitis with symptomatic leukorrhea
295	Vulvovaginitis
296	Not assigned
297	Tubal pregnancy all cases
298	Not assigned
299	Abortion spontaneous with hemorrhage
300	Not assigned
301	Psychosis
302	Conduct disorders
303	Non-psychotic mental disorders
304	Stress reaction severe unstable slow improvement
305	Stress reaction severe stable slow improvement
306	Alcohol dependency syndrome moderate
307	Alcohol misuse simple intoxication
308	Drug dependency (other than alcohol) severe
309	Drug misuse (other than alcohol) mild or moderate
310	Stress reaction mild/moderate
311	Eye wound lacerated penetrated with retinal injury eye salvageable
312	Wound knee open lacerated penetrating perforating with joint space penetration no bone or articular cartilage
313	Wound abdominal cavity open with lacerated penetrating perforating wound kidney moderate - kidney salvageable
314	Stress reaction severe unstable delayed improvement
315	Stress reaction severe unstable persisting
316	Alcohol dependency severe - impending or actual DTs

**Appendix A - DEPMEDS Patient Condition List**

317 Drug misuse (other than alcohol) severe - atypical no dependency  
318 Stress reaction severe - rapid improvement  
319 Wound fingers open lacerated contused crushed with fracture(s) of phalangeals not requiring rehabilitation  
320 Dislocation/subluxation temporomandibular joint without fracture chronic requiring correction  
321 Dislocation/subluxation temporomandibular joint without fracture acute initial injury  
322 Fracture mandible with/without oral laceration without airway involvement unstable requiring open reduction  
323 Fracture mandible with/without oral laceration without airway involvement mild displacement stable  
324 Stress reaction severe stable - delayed improvement  
325 Stress reaction severe stable persisting  
326 Not assigned  
327 Not assigned  
328 Animal bites and rabies exposure  
329 Trachoma all cases  
330 Schistosomiasis all cases  
331 Malaria severe - all species  
332 Malaria moderate - all species  
333 Febrile illness acute severe - except malaria and pneumonia  
334 Febrile illness acute moderate  
335 Snake bite  
336 Not assigned  
337 Not assigned  
338 Not assigned  
339 Cutaneous ulcers including leishmaniasis  
340 Not assigned  
341 Not assigned  
342 Not assigned

Appendix A - DEPMEDS Patient Condition List

- 343 Not assigned
- 344 Not assigned
- 345 Not assigned
- 346 Eye wound directed energy induced (laser) severe of macula and/or optic nerve with vitreous blood severe visual loss one or both eyes
- 347 Eye wound directed energy induced (laser/rff) moderate to severe posterior nonmacular nonoptic nerve visual loss secondary to vitreous blood
- 348 Eye wound directed energy induced (laser) moderate nonmacular nonoptic nerve no vitreous blood
- 349 Eye wound directed energy induced (laser/rff) mild to moderate anterior pain with photophobia and disruption of corneal integrity
- 350 Eye wound directed energy induced (laser) mild flash blindness no permanent damage

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 595 BLOOD GAS ESTIMATION**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Analyzer Carbon Dioxide Hand Operated	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Demineralizer Water Ion Exchange 10W	1	Book Memorandum 10.5x8IN Ruled	1
Outlet Box 6LB 6 Place 120/230V 50/60HZ	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Refrigerator Mechanical Biologicals 115V	1	Pen Ballpoint Retractable Med Pt Black	1
Ruler Wood w/Bevel 12IN Sing Metal Edging	1	Rubber Bands Size #33	2
Sink Unit Surgical Scrub Field Portable 115V	1	SF546 Chem I (3 PT)	1
Stapler Paper Fastening Office Desk Gray	1	Staples Paper Fastening Office Type	2
Sterilizer Surgical Instrument & Dressing	1	Test Kit Serum Carbon Dioxide Determination	1
Table Folding Legs: Laboratory	1		

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 596 ELECTROLYTE LEVELS (Na, K, Cl, CO<sub>2</sub>)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
			Um
Analyzer Module Clinical Chem Ektachem DT60	1	Bag Biohazard Disposable Red/Orange	1
Analyzer Clinical Chemistry Ektachem DT60	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Centrifuge Lab Battery Powered 9V	1	Book Memorandum 10.5x8IN Ruled	1
Chair Rotary Style AG12 w/Footrest Spider	1	Control Human Serum f/Dry Chem Abnormal	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Control Human Serum f/Dry Chem Normal	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Refrigerator Mechanical Biologicals 115V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Sink Unit Surgical Scrub Field Portable 115V	1	Holder Blood Collecting Tube Plas Polyprop	1
Sterilizer Surgical Instrument & Dressing	1	Needle Hypodermic Ster Disp Mat 20GA	1
Table Folding Legs: Laboratory	1	Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Reference Standard Sol Sodium Potas Chl	1
		Reference Standard/Dilut Set Blood Chem	1
		Rubber Bands Size #33	2
		SF546 Chem I (3 PT)	1
		Sponge Surg Gauze Compressed 2x2IN White	2
		Staples Paper Fastening Office Type	2
		Test Slide Carbon Dioxide Determination	1
		Test Slide Chloride Determination	1
		Test Slide Potassium Determination Disp	1
		Test Slide Sodium Determination Disp	1
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collecting Glass 7ML Type II Size 2	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 599 SERUM CREATININE LEVEL**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Book Memorandum 10.5x8IN Ruled	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Refrigerator Mechanical Biologicals 115V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Sink Unit Surgical Scrub Field Portable 115V	1	Holder Blood Collecting Tube Plas Polyprop	1
Sterilizer Surgical Instrument & Dressing	1	Lancet Finger Bleeding	1
Table Folding Legs: Laboratory	1	Needle Hypodermic Ster Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Pipet Lithium Heparinized	1
		Pipet Transfer 1.5ML Capacity Disp	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Reagent Rotor Piccolo General Health 11 Test	1
		Sponge Surg Gauze Compressed 2x2IN White	2
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collect Grr Cap 5ML w/Lith Hep	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 601 SGPT LEVEL**

**EQUIPMENT**

**Nomenclature**

**Amount**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Analyzer Clinical Chemistry Piccolo	1	Bag Biohazard Disposable Red/Orange	1	EA
Chair Rotarty Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Book Memorandum 10.5x8IN Ruled	1	EA
Rack Test Tube Laboratory 10x4.25x2.5IN	1	Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Refrigerator Mechanical Biologicals 115V	1	Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Sink Unit Surgical Scrub Field Portable 115V	1	Holder Blood Collecting Tube Plas Polyprop	1	EA
Sterilizer Surgical Instrument & Dressing	1	Lancet Finger Bleeding	1	EA
Table Folding Legs: Laboratory	1	Needle Hypodermic Ster Disp Mat 20GA	1	EA
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
		Pencil Red Glazed Extra Thick 6.25IN	1	EA
		*Pipet Lithium Heparinized	1	EA
		*Pipet Transfer 1.5ML Capacity Disp	1	EA
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
		*Reagent Rotor Piccolo Liver Panel 08 Test	1	EA
		Sponge Surg Gauze Compressed 2x2IN White	2	EA
		Tube Drain Surgical Penrose 7/8x12IN	1	EA
		*Tube Blood Collect Grn Cap 5ML w/Lith Hep	1	EA

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 603 BLOOD GLUCOSE LEVEL**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1	Bag Biohazard Disposable Red/Orange	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1	Book Memorandum 10.5x8IN Ruled	1
Refrigerator Mechanical Biologicals 115V	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Sink Unit Surgical Scrub Field Portable 115V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Sterilizer Surgical Instrument & Dressing	1	Holder Blood Collecting Tube Plas Polyprop	1
Table Folding Legs: Laboratory	1	Lancet Finger Bleeding	1
		Needle Hypodermic Sterl Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Pipet Lithium Heparinized	1
		Pipet Transfer 1.5ML Capacity Disp	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Reagent Rotor Piccolo General Health 11 Test	1
		Sponge Surg Gauze Compressed 2x2IN White	2
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collect Gm Cap 5ML w/Lith Hep	1

**Appendix B - Equipment & Consumable Requirements for Laboratory Tasks**

**Laboratory Task: 604 BUN LEVEL**

**EQUIPMENT**

**Nomenclature**

**Amount**

**CONSUMABLES**

**Amount**

**Um**

Analyzer Clinical Chemistry Piccolo  
 Outlet Box 6LB 6 Place 120/230V 50/60Hz  
 Rack Test Tube Laboratory 10x4.25x2.5IN  
 Refrigerator Mechanical Biologicals 115V  
 Sink Unit Surgical Scrub Field Portable 115V  
 Sterilizer Surgical Instrument & Dressing  
 Table Folding Legs: Laboratory

Bag Biohazard Disposable Red/Orange  
 Bag Sterilization/Biohazard Disp 36x24IN  
 Book Memorandum 10.5x8IN Ruled  
 Disp Contain Hypodermic Needle & Syringe Plas  
 Gloves Patient Exam & Treat Plastic Disp LG  
 Holder Blood Collecting Tube Plas Polyprop  
 Lancet Finger Bleeding  
 Needle Hypodermic Ster Disp Mat 20GA  
 Pad Isopro Alcohol Impregnated 2.6x1.8IN  
 Pencil Red Glazed Extra Thick 6.25IN  
 Pipet Lithium Heparinized  
 Pipet Transfer 1.5ML Capacity Disp

Povidone-Iodine Cleansing Sol USP 7.5% 0.2  
 Reagent Rotor Piccolo General Health 11 Test 1  
 Sponge Surg Gauze Compressed 2x2IN White 2  
 Tube Drain Surgical Penrose 7/8x12IN 1  
 Tube Blood Collect Grn Cap 5ML w/Lith Hep 1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 605 SERUM BILIRUBIN LEVEL**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Refrigerator Mechanical Biologicals 115V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Sink Unit Surgical Scrub Field Portable 115V	1	Holder Blood Collecting Tube Plas Polyprop	1
Sterilizer Surgical Instrument & Dressing	1	Lancet Finger Bleeding	1
Table Folding Legs: Laboratory	1	Needle Hypodermic Ster Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		*Pipet Lithium Heparinized	1
		*Pipet Transfer 1.5ML Capacity Disp	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		*Reagent Rotor Piccolo General Health 11 Test	1
		Sponge Surg Gauze Compressed 2x2IN White	2
		Tube Drain Surgical Penrose 7/8x12IN	1
		*Tube Blood Collect Grn Cap 5ML w/Lith Hep	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 612 COMPLETE BLOOD COUNT (CBC)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Analyzer Centrifugal Hematology 120/220V	1	Acetic Acid Glacial USP	0.2
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	OZ
Counter Blood Cells Differential	1	Bag Sterilization/Biohazard Disp 36x24IN	EA
Hemacytometer Set Complete w/Case	1	Capillary Centrifugal Hematology TU	EA
Microscope Optical Binocular 120/230V	1	Disp Contain Hypodermic Needle & Syringe Plas	EA
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Form Printed Hematology 6.25x4IN	EA
Pipet Blood Diluting Thoma Glass M11 White	1	Gloves Patient Exam & Treat Plastic Disp LG	PR
Pipet Blood Diluting Thoma Glass w/o Tubing	1	Holder Blood Collecting Tube Plas Polyprop	EA
Shield Optical Microscope Collapsible Vinyl	1	Lancet Finger Bleeding	EA
Sink Unit Surgical Scrub Field Portable 115V	1	Mouthpiece Pipetting Plastic/Bone	EA
Sterilizer Surgical Instrument & Dressing	1	Needle Hypodermic Ster Disp Mat 20GA	EA
Table Folding Legs: Laboratory	1	Pad Isopro Alcohol Impregnated 2.6x1.8IN	EA
		Paper Lens Pad White Bibulous 6x4IN	EA
		Pen Ballpoint Retractable Med Pt Black	EA
		Pencil Red Glazed Extra Thick 6.25IN	EA
		Pipet-Diluent Blood Lab Plastic .02ML	EA
		Povidone-Iodine Cleansing Sol USP 7.5%	OZ
		Rubber Bands Size #33	2
		Sponge Surg Gauze Compressed 2x2IN White	2
		Staples Paper Fastening Office Type	EA
		Tube Drain Surgical Penrose 7/8x12IN	EA
		Tube Blood Collecting Glass 7ML Type II Size 2	EA
		Tube Venous Centrifugal Hematology	EA

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 614 HEMATOCRIT LEVEL**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Centrifuge Lab Battery Powered 9V	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Book Memorandum 10.5x8IN Ruled	1
Power Supply 115V 50/60Hz	1	Capillary Centrifugal Hematology TU	1
Sink Unit Surgical Scrub Field Portable 115V	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Stapler Paper Fastening Office Desk Gray	1	Form Printed Hematology 6.25x4IN	1
Sterilizer Surgical Instrument & Dressing	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Table Folding Legs: Laboratory	1	Holder Blood Collecting Tube Plas Polyprop	1
		Lancet Finger Bleeding	1
		Needle Hypodermic Ster Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Rubber Bands Size #33	2
		Sealer-Holder Capill Tube Plastic Disp	1
		Sponge Surg Gauze Compressed 2x2IN White	2
		Staples Paper Fastening Office Type	2
		Tube Capillary Microhemocrit Glass K28	1
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collecting Vacuum 7ML Solution	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 615 WHITE BLOOD CELL DIFFERENTIAL COUNT**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Beaker Lab Polyprop 400ML Cap Rating B1 Low	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Counter Blood Cells Differential	1	Book Memorandum 10.5x8IN Ruled	1
Demineralizer Water Ion Exchange 10W	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Forceps Hemostatic Kelly Curved 5.5IN	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Funnel Common Lab Polyprop Ribbed 100MM	1	Form Printed Hematology 6.25x4IN	1
Microscope Optical Binocular 120/230V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Holder Blood Collecting Tube Plas Polyprop	1
Pan Biological Staining Rectangle 25.3x15CM	1	Immersion Oil Microscopy	0.1
Shield Optical Microscope Collapsible Vinyl	1	Lancet Finger Bleeding	1
Sink Unit Surgical Scrub Field Portable 115V	1	Needle Hypodermic Ster Disp Mat 20GA	1
Stapler Paper Fastening Office Desk Gray	1	Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
Sterilizer Surgical Instrument & Dressing	1	Paper Lens Pad White Bibulous 6x4IN	1
Table Folding Legs: Laboratory	1	Pen Ballpoint Retractable Med Pt Black	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Rubber Bands Size #33	2
		Slide Microscope Plain Glass 25x75MM	1
		Sponge Surg Gauze Compressed 2x2IN White	2
		Staples Paper Fastening Office Type	2
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collecting Glass 7ML Type II Size 2	1
		Wright's Staining Solution Romanowski	1
		CC	

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 616 PROTHROMBIN TIME (PT)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1
DeMineralizer Water Ion Exchange 10W	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Incubator Dry Heat 25-115 Deg C 115/120V	1	Book Memorandum 10.5x8IN Ruled	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Refrigerator Mechanical Biologicals 115V	1	Cephaloplastin Reagent 2ML	1
Sink Unit Surgical Scrub Field Portable 115V	1	Control Coagula Abnormal Citrated Lyophil	1
Sapler Paper Fastening Office Desk Gray	1	Control Coagula Normal Citrated Lyophil	1
Sterilizer Surgical Instrument & Dressing	1	Cuvette Blood Sample Plas Disp K31	1
Table Folding Legs: Laboratory	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Timer Blood/Plasma Coagulation 115V 60Hz	1	Form Printed Hematology 6.25x4IN	1
		Gloves Patient Exam & Treat Plastic Disp LG	1
		Holder Blood Collecting Tube Plas Polyprop	1
		Needle Hypodermic Ster Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Rubber Bands Size #33	2
		Staples Paper Fastening Office Type	2
		Thromboplastin Test Reagent Liquid 10 ML/Vial	1
		Tip Pipet Style M28 Disp Plastic	1
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collecting Type I Size 1 5ML	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 617 PARTIAL THROMBOPLASTIN TIME (PTT)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount Um
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1 EA
DeMineralizer Water Ion Exchange 10W	1	Bag Sterilization/Biohazard Disp 36x24IN	1 EA
Incubator Dry Heat 25-115 Deg C 115/120V	1	Book Memorandum 10.5x8IN Ruled	1 EA
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1 EA
Refrigerator Mechanical Biologicals 115V	1	Cephaloplastin Reagent 2ML	1 EA
Sink Unit Surgical Scrub Field Portable 115V	1	Control Coagula Abnormal Citrated Lyophil	1 EA
Stapler Paper Fastening Office Desk Gray	1	Control Coagula Normal Citrated Lyophil	1 EA
Sterilizer Surgical Instrument & Dressing	1	Cuvette Blood Sample Plas Disp K31	1 EA
Table Folding Legs: Laboratory	1	Disp Contain Hypodermic Needle & Syringe Plas	1 EA
Timer Blood/Plasma Coagulation 115V 60Hz	1	Form Printed Hematology 6.25x4IN	1 EA
		Gloves Patient Exam & Treat Plastic Disp LG	1 PR
		Holder Blood Collecting Tube Plas Polyprop	1 EA
		Needle Hypodermic Ster Disp Mat 20GA	1 EA
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1 EA
		Pen Ballpoint Retractable Med Pt Black	1 EA
		Pencil Red Glazed Extra Thick 6.25IN	1 EA
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2 OZ
		Rubber Bands Size #33	2 EA
		Sponge Surg Gauze Compressed 2x2IN White	2 EA
		Staples Paper Fastening Office Type	2 EA
		Thromboplastin Test Reagent Liquid 10ML/Vial	1 EA
		Tip Pipet Style M28 Disp Plastic	1 EA
		Tube Drain Surgical Penrose 7/8x12IN	1 EA
		Tube Blood Collecting Type I Size 1 5ML	1 EA

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 618 OCCULT BLOOD DETERMINATION**

<b>EQUIPMENT</b>		<b>CONSUMABLES</b>	
<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1
Sink Unit Surgical Scrub Field Portable 115V	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Stapler Paper Fastening Office Desk Gray	1	Form Printed Miscellaneous 6.25x4IN	1
Table Folding Legs: Laboratory	1	Gloves Patient Exam & Treat Plastic Disp LG	1
		Pen Ballpoint Retractable Med Pt Black	1
		Staples Paper Fastening Office Type	2
		Test Kit Occult Blood Determination	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 619 SPINAL FLUID CELL COUNT & DIFFERENTIAL**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Beaker Lab Polyprop 400ML Cap Rating B1 Low	1	Acetic Acid Glacial USP	0.2
Centrifuge Lab SM Trunnion 115V 50/60Hz	1	Applicator Disp Square Tip 6"-.08" Dia	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1
Counter Blood Cells Differential	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Deminerilizer Water Ion Exchange 10W	1	Book Memorandum 10.5x8IN Ruled	1
Forceps Hemostatic Kelly Curved 5.5IN	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Funnel Common Lab Polyprop Ribbed 100MM	1	Form Printed Miscellaneous 6.25x4IN	1
Hemacytometer Set Complete w/Case	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Microscope Optical Binocular 120/230V	1	Immersion Oil Microscopy	0.1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Mouthpiece Pipetting Plastic/Bone	1
Pan Biological Staining Rectangle 25.3x15CM	1	Paper Lens Pad White Bibulous 6x4IN	1
Pipet Blood Diluting Thoma Glass M11 White	1	Pen Ballpoint Retractable Med Pt Black	1
Pipet Blood Diluting Thoma Glass w/o Tubing	1	Rubber Bands Size #33	2
Refrigerator Mechanical Biologicals 115V	1	Slide Microscope Plain Glass 25x75MM	1
Shield Optical Microscope Collapsible Vinyl	1	Staples Paper Fastening Office Type	2
Sink Unit Surgical Scrub Field Portable 115V	1	Wright's Staining Solution Romanowski	1
Stapler Paper Fastening Office Desk Gray	1		1
Table Folding Legs: Laboratory	1		1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 620 URINALYSIS WITH SPECIFIC GRAVITY**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Book Memorandum 10.5x8IN Ruled	1
Refractometer Hand Immersion Ty Alum 3 Scale	1	Form Printed Urinalysis 6.25x4IN	1
Sink Unit Surgical Scrub Field Portable 115V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Stapler Paper Fastening Office Desk Gray	1	Pen Ballpoint Retractable Med Pt Black	1
Table Folding Legs: Laboratory	1	Rubber Bands Size #33	2
		Specimen Kit Urine 501 Components	1
		Staples Paper Fastening Office Type	2
		Sulfosal Acid Dihydrate Analyzed Reagent	1
		Test Strip/Color Urine Chemistry	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 621 MICROSCOPIC URINALYSIS**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
			Um
Centrifuge Lab SM Trunnion 115V 50/60Hz	1	Applicator Disp Square Tip 6"-.08" Dia	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1
DeMineralizer Water Ion Exchange 10W	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Microscope Optical Binocular 120/230V	1	Book Memorandum 10.5x8IN Ruled	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Shield Optical Microscope Collapsible Vinyl	1	Cover Glass Microscope Slide 22MM	1
Sink Unit Surgical Scrub Field Portable 115V	1	Form Printed Urinalysis 6.25x4IN	1
Stapler Paper Fastening Office Desk Gray	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Table Folding Legs: Laboratory	1	Paper Lens Pad White Bibulous 6x4IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Rubber Bands Size #33	2
		Slide Microscope Plain Glass 25x75MM	1
		Specimen Kit Urine 501 Components	1
		Staples Paper Fastening Office Type	2

**Appendix B - Equipment & Consumable Requirements for Laboratory Tasks**

**Laboratory Task: 633 GRAM STAIN**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Burner Gas Lab Bunsen Liq Petroleum Gas	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Deminerilizer Water Ion Exchange 10W	1	Book Memorandum 10.5x8IN Ruled	1
Forceps Hemostatic Kelly Curved 5.5IN	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Igniter Friction Wire Frame Round File	1	Cartridge Lab Gas Burner Disp Nonrefill	1
Loop Inoculating Lab Round Tip 0.41MM	1	Form Printed Miscellaneous 6.25x4IN	1
Microscope Optical Binocular 120/230V	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Immersion Oil Microscopy	0.1
Shield Optical Microscope Collapsible Vinyl	1	Kit Gram Staining	1
Sink Unit Surgical Scrub Field Portable 115V	1	Paper Lens Pad White Bibulous 6x4IN	1
Stapler Paper Fastening Office Desk Gray	1	Pen Ballpoint Retractable Med Pt Black	1
Table Folding Legs: Laboratory	1	Slide Microscope Plain Glass 25x75MM	1
		Staples Paper Fastening Office Type	2

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 634 RPR TEST FOR SYPHILIS**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1	Bag Biohazard Disposable Red/Orange	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Sterilization/Biohazard Disp 36x24IN	1
DeMineralizer Water Ion Exchange 10W	1	Book Memorandum 10.5x8IN Ruled	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Bulb Dropping Pipet Rubber 3ML	1
Refrigerator Mechanical Biologicals 115V	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Rotator Lab Variable Speed 120/230V	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Sink Unit Surgical Scrub Field Portable 115V	1	Form Printed Miscellaneous 6.25x4IN	1
Stapler Paper Fastening Office Desk Gray	1	Gloves Patient Exam & Treat Plastic Disp LG	1
Sterilizer Surgical Instrument & Dressing	1	Holder Blood Collecting Tube Plas Polyprop	1
Table Folding Legs: Laboratory	1	Needle Hypodermic Ster Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Rubber Bands Size #33	2
		Staples Paper Fastening Office Type	2
		Test Kit Syphilis Detection	1
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collecting Glass 7ML Type II Size 2	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 636 THICK & THIN SMEAR FOR MALARIA**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1	Applicator Disp Square Tip 6"-.08" Dia	2
Demineralizer Water Ion Exchange 10W	1	Bag Biohazard Disposable Red/Orange	1
Microscope Optical Binocular 120/230V	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Book Memorandum 10.5x8IN Ruled	1
Shield Optical Microscope Collapsible Vinyl	1	Box Microscope Slide Plastic 25 Slides	1
Sink Unit Surgical Scrub Field Portable 115V	1	Capillary Centrifugal Hematology TU	1
Stapler Paper Fastening Office Desk Gray	1	Disp Contain Hypodermic Needle & Syringe Plas	1
Sterilizer Surgical Instrument & Dressing	1	Form Printed Miscellaneous 6.25x4IN	1
Table Folding Legs: Laboratory	1	Giemsa's Staining Solution 50ML 25GM	15
		Gloves Patient Exam & Treat Plastic Disp LG	1
		Holder Blood Collecting Tube Plas Polyprop	1
		Immersion Oil Microscopy	0.1
		Needle Hypodermic Ster Disp Mat 20GA	1
		Pad Isopro Alcohol Impregnated 2.6x1.8IN	1
		Paper Lens Pad White Bibulous 6x4IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Pencil Red Glazed Extra Thick 6.25IN	1
		Povidone-Iodine Cleansing Sol USP 7.5%	0.2
		Rubber Bands Size #33	2
		Sponge Surg Gauze Compressed 2x2IN White	2
		Staples Paper Fastening Office Type	2
		Tube Drain Surgical Penrose 7/8x12IN	1
		Tube Blood Collecting Vacuum 7ML Solution	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 637 EXAMINE FECES FOR OVA, CYSTS & PARASITES**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1	Applicator Disp Square Tip 6"-08" Dia	1
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1
DeMineralizer Water Ion Exchange 10W	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Microscope Optical Binocular 120/230V	1	Book Memorandum 10.5x8IN Ruled	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Box Microscope Slide Plastic 25 Slides	1
Refrigerator Mechanical Biologicals 115V	1	Bulb Dropping Pipet Rubber 3ML	1
Shield Optical Microscope Collapsible Vinyl	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Sink Unit Surgical Scrub Field Portable 115V	1	Fecal Specimen Collection/Preparation Kit	1
Stapler Paper Fastening Office Desk Gray	1	Form Printed Miscellaneous 6.25x4IN	1
Table Folding Legs: Laboratory	1	Gloves Patient Exam & Treat Plastic Disp LG	1
		Immersion Oil Microscopy	0.1
		Paper Lens Pad White Bibulous 6x4IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Pipet Bacteriological Disp	1
		Rubber Bands Size #33	2
		Staples Paper Fastening Office Type	2

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 639 PREGNANCY DETERMINATION**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1	Bag Biohazard Disposable Red/Orange	1
Refrigerator Mechanical Biologicals 115V	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Sink Unit Surgical Scrub Field Portable 115V	1	Form Printed Miscellaneous 6.25x4IN	1
Table Folding Legs: Laboratory	1	Gloves Patient Exam & Treat Plastic Disp LG	1
		Pen Ballpoint Retractable Med Pt Black	1
		Rubber Bands Size #33	2
		*Test Kit Human Chorionic Gonadotropin	1

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 638 POTASSIUM HYDROXIDE (KOH)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1	Applicator Disp Square Tip 6"-.08" Dia	1
DeMineralizer Water Ion Exchange 10W	1	Bag Biohazard Disposable Red/Orange	1
Microscope Optical Binocular 120/230V	1	Bag Sterilization/Biohazard Disp 36x24IN	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1	Book Memorandum 10.5x8IN Ruled	1
Shield Optical Microscope Collapsible Vinyl	1	Bulb Dropping Pipet Rubber 3ML	1
Sink Unit Surgical Scrub Field Portable 115V	1	Cartridge H <sub>2</sub> O Demineralize Ion Exchange	1
Stapler Paper Fastening Office Desk Gray	1	Cover Glass Microscope Slide 22MM 1OZ	1
Table Folding Legs: Laboratory	1	Form Printed Miscellaneous 6.25X4IN	1
		Gloves Patient Exam & Treat Plastic Disp LG	1
		Paper Lens Pad White Bibulous 6x4IN	1
		Pen Ballpoint Retractable Med Pt Black	1
		Potassium Hydroxide ACS Pellet	0.1
		Slide Microscope Plain Glass 25x75MM	1
		Staples Paper Fastening Office Type	2

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 641 BLOOD T & C**

**EQUIPMENT**

**Nomenclature**

**Amount**

Centrifuge Lab SM Trunion 115V 50/60Hz  
 Chair Rotary Style AG12 w/Footrest Spider  
 Demineralizer Water Ion Exchange 10W  
 Incubator Dry Heat 25-115 Deg C 115/120V  
 Microscope Optical Binocular 120/230V  
 Outlet Box 6LB 6 Place 120/230V 50/60Hz  
 Rack Test Tube Laboratory 10x4.25x2.5IN  
 Refrigerator Solid State Blood Products  
 Refrigerator Mechanical Biologicals 115V  
 Shears Straight Trimmers Heavy  
 Shield Optical Microscope Collapsible Vinyl  
 Sink Unit Surgical Scrub Field Portable 115V  
 Stapler Paper Fastening Office Desk Gray  
 Sterilizer Surgical Instrument & Dressing  
 Stripper-Sealer-Cutter Blood Coll TU Handheld  
 Table Folding Legs: Laboratory  
 Viewer Agglutination Test Tube 115V 60Hz  
 Wash Bottle Lab 250ML Plastic Polyethylene

**CONSUMABLES**

**Nomenclature**

**Amount**

Bag Blood Collecting/Dispensing Disp 600ML  
 Blood Donor Card DD-572  
 Blood Grouping Serum Anti-A Liquid 10ML  
 Blood Grouping Serum Anti-A & B Liquid 10ML  
 Blood Grouping Serum Anti-B Liquid 10ML  
 Blood Grouping Serum Anti-D Liquid 10ML  
 Book Memorandum 10.5x8IN Ruled  
 Bulb Dropping Pipet Rubber 3ML  
 Cartridge H<sub>2</sub>O Demineralize Ion Exchange  
 Clip Sealing Blood Collection  
 Disp Contain Hypodermic Needle & Syringe Plas  
 Form Printed Miscellaneous 6.25x4IN  
 Gloves Patient Exam & Treat Plastic Disp LG  
 Holder Blood Collecting Tube Plas Polyprop  
 Label Style A2 Pressure Sensitive 492INx19MM  
 Pad Isopro Alcohol Impregnated 2.6x1.8IN  
 Paper Lens Pad White Bibulous 6x4IN  
 Pen Ballpoint Retractable Med Pt Black  
 Pencil Red Glazed Extra Thick 6.25IN  
 Povidone-Iodine Cleansing Sol USP 7.5%  
 Rubber Bands Size #33  
 Sponge Surg Gauze Compressed 2x2IN White  
 Staples Paper Fastening Office Type  
 Test Tube Style K12 5ML 75MM Disp

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

**Laboratory Task: 631 RAPID STREP TEST (THROAT)**

<b>EQUIPMENT</b>	<b>CONSUMABLES</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Chair Rotary Style AG12 w/Footrest Spider	Applicator Disp Square Tip 6"-08" Dia	1		1	EA
Refrigerator Mechanical Biologicals 115V	Bag Biohazard Disposable Red/Orange	1		1	EA
Sink Unit Surgical Scrub Field Portable 115V	Bag Sterilization/Biohazard Disp 36x24IN	1		1	EA
Stapler Paper Fastening Office Desk Gray	Form Printed Miscellaneous 6.25x4IN	1		1	EA
Table Folding Legs: Laboratory	Gloves Patient Exam & Treat Plastic Disp LG	1		1	PR
	Rubber Bands Size #33	2		2	EA
	Staples Paper Fastening Office Type	2		2	EA
	*Test Kit Group A Strep	1		1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 657 HAND SERIES**

**EQUIPMENT**

**Nomenclature**

**Amount**

Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

**CONSUMABLES**

**Nomenclature**

**Amount**

Label X-ray Film Identification Pressure Sensitiv	1
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4
Additive Developer X-ray Film 5 Fl Oz	1
Envelope Photographic Negative 17.5x14.5	2
Form Printed Radiographic Rpt 8x10.5	2
Fixer X-ray Film Processing	1
Developer X-ray Film Processing Liquid	1

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 658 WRIST SERIES**

**EQUIPMENT**

**CONSUMABLES**

Nomenclature	Amount	Nomenclature	Amount	Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Rule Anatomical Transparent 2x18	1	Additive Developer X-ray Film 5 Fl Oz	1	EA
Cassette Radiographic Film w/Lanex 24x30CM	2	Envelope Photographic Negative 17.5x14.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Fixer X-ray Film Processing	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Developer X-ray Film Processing Liquid	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 659 FOREARM SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensity	1	
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Rule Anatomical Transparent 2x18	1	Additive Developer X-ray Film 5 Fl Oz	1	EA
Cassette Radiographic Film w/Lanex 35x43CM	4	Envelope Photographic Negative 17.5x14.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Fixer X-ray Film Processing	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Developer X-ray Film Processing Liquid	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 660 ELBOW SERIES**

**EQUIPMENT**

**CONSUMABLES**

Nomenclature	Amount	Nomenclature	Amount	Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensity	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Rule Anatomical Transparent 2x18	1	Additive Developer X-ray Film 5 Fl Oz	1	EA
Cassette Radiographic Film w/Lanex 24x30CM	2	Envelope Photographic Negative 17.5x14.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Fixer X-ray Film Processing	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Developer X-ray Film Processing Liquid	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 661 HUMERUS SERIES**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
			Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitiv	1
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	4
Rule Anatomical Transparent 2x18	1	Additive Developer X-ray Film 5 Fl Oz	1
Cassette Radiographic Film H Speed 17x14	4	Envelope Photographic Negative 17.5x14.5	2
Illuminator X-ray Film Fluorescent Illuminated	1	Form Printed Radiographic Rpt 8x10.5	2
Screen X-ray Protective Mobile 6x2.5 FT	1	Fixer X-ray Film Processing	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Developer X-ray Film Processing Liquid	1
Apron X-ray Protective Coat 38x24 Lt Weight	1		
Holder Radiac Detecting Element Steel Style 12C	1		
Thermometer Self-Indicting Bimetallic 8.5IN	1		
Table Radiographic Portable Adj 72x27	1		
Bottle Waste X-ray Processor 5 GL Capacity	1		
Processing Machine Rad Film Auto Table Top	1		

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 662 SHOULDER SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 10x12 Linear Focused Type Str Wafer	1	Label X-ray Film Identification Pressure Sensitiv Film Radiographic Kodak T-Mat H/Ra 24x30CM	1	EA
Marker Set X-ray Film Ident Gothic Letter	3	Additive Developer X-ray Film 5 Fl Oz	6	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	1	EA
Cassette Radiographic Film w/Lanex 24x30CM	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 665 CLAVICLE SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 10x12 Linear Focused Type Str Wafer	1 2	Label X-ray Film Identification Pressure Sensitiv Film Radiographic Kodak T-Mat H/Ra 24x30CM	1 4	EA EA
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2	EA
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	4	Fixer X-ray Film Processing	1	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1			
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 666 FOOT SERIES**

**EQUIPMENT**

**Nomenclature**

<b>Nomenclature</b>	<b>Amount</b>
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

**Nomenclature**

<b>CONSUMABLES</b>	<b>Amount</b>	<b>Um</b>
Label X-ray Film Identification Pressure Sensitv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 667 ANKLE SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitiv	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	4	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 668 LEG TIBIA/FIBIA SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	4	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 669 KNEE SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	12	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	12	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 672 FEMUR SERIES**

**EQUIPMENT**

**CONSUMABLES**

Nomenclature	Amount	Nomenclature	Amount	Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Cassette Radiographic Film w/Lanex 35x43CM	4	Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Envelope Photographic Negative 17.5x14.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Form Printed Radiographic Rpt 8x10.5	2	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Fixer X-ray Film Processing	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1	Developer X-ray Film Processing Liquid	1	EA
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 673 HIP SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Cassette Radiographic Film w/Lanex 24x30CM	2	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	2	Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Envelope Photographic Negative 17.5x14.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Form Printed Radiographic Rpt 8x10.5	2	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Fixer X-ray Film Processing	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1	Developer X-ray Film Processing Liquid	1	EA
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 674 PELVIS AP**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1
Cassette Radiographic Film w/Lanex 35x43CM	2	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1	Envelope Photographic Negative 17.5x14.5	2
Screen X-ray Protective Mobile 6x2.5 FT	1	Form Printed Radiographic Rpt 8x10.5	2
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Fixer X-ray Film Processing	1
Apron X-ray Protective Coat 38x24 Lt Weight	1	Developer X-ray Film Processing Liquid	1
Holder Radiac Detecting Element Steel Style 12C	1		
Thermometer Self-Indicting Bimetallic 8.5IN	1		
Table Radiographic Portable Adj 72x27	1		
Bottle Waste X-ray Processor 5 GL Capacity	1		
Processing Machine Rad Film Auto Table Top	1		

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 675 LIUM OBLIQUE**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitiv	1	EA
Cassette Radiographic Film w/Lanex 35x43CM	4	Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Envelope Photographic Negative 17.5x14.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Form Printed Radiographic Rpt 8x10.5	2	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Fixer X-ray Film Processing	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1	Developer X-ray Film Processing Liquid	1	EA
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 676 CHEST APPA**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Unit</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Grid Radio 14x17 Linear Focused Type Str Wafer	2	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	2	Envelope Photographic Negative 17.5x14.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Fixer X-ray Film Processing	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Developer X-ray Film Processing Liquid	1	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 677 CHEST LATERAL**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 14x17 Linear Focused Type Str Wafer	1	Label X-ray Film Identification Pressure Sensitive Film Radiographic Kodak T-Mat H/Ra 35x43CM	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2	EA
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	2	Fixer X-ray Film Processing	1	EA
Illuminator X-ray Film Fluorescent Illuminated Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 679 ABDOMEN SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 14x17 Linear Focused Type Str Wafer	1 2	Label X-ray Film Identification Pressure Sensitive Film Radiographic Kodak T-Mat H/Ra 35x43CM	1 6	EA EA
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2	EA
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	6	Fixer X-ray Film Processing	1	EA
Illuminator X-ray Film Fluorescent Illuminated Screen X-ray Protective Mobile 6x2.5 FT	1 1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap Apron X-ray Protective Coat 38x24 Lt Weight	1 1			
Holder Radiac Detecting Element Steel Style 12C Thermometer Self-Indicting Bimetallic 8.5IN	1 1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity Processing Machine Rad Film Auto Table Top	1 1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 680 ABDOMEN (SUPINE)**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	2	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 681 ABDOMEN (UPRIGHT)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
			Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1
Grid Radio 14x17 Linear Focused Type Str Wafer	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2
Cassette Radiographic Film w/Lanex 35x43CM	2	Fixer X-ray Film Processing	1
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1
Screen X-ray Protective Mobile 6x2.5 FT	1		
X-ray Apparatus Radio Port 25-40MA Low Cap	1		
Apron X-ray Protective Coat 38x24 Lt Weight	1		
Holder Radiac Detecting Element Steel Style 12C	1		
Thermometer Self-Indicating Bimetallic 8.5IN	1		
Table Radiographic Portable Adj 72x27	1		
Bottle Waste X-ray Processor 5 GL Capacity	1		
Processing Machine Rad Film Auto Table Top	1		

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 682 THORACIC SPINE SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	4	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 683 CERVICAL SPINE SERIES**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
			Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1
Grid Radio 10x12 Linear Focused Type Str Wafer	5	Film Radiographic Kodak T-Mat H/Ra 24x30CM	10
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2
Cassette Radiographic Film w/Lanex 24x30CM	10	Fixer X-ray Film Processing	1
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1
Screen X-ray Protective Mobile 6x2.5 FT	1		
X-ray Apparatus Radio Port 25-40MA Low Cap	1		
Apron X-ray Protective Coat 38x24 Lt Weight	1		
Holder Radiac Detecting Element Steel Style 12C	1		
Thermometer Self-Indicting Bimetallic 8.5IN	1		
Table Radiographic Portable Adj 72x27	1		
Bottle Waste X-ray Processor 5 GL Capacity	1		
Processing Machine Rad Film Auto Table Top	1		

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 684 LUMBAR SPINE SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	8	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	8	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 685 SACRO-ILIAC JOINT SERIES**

**EQUIPMENT**

**CONSUMABLES**

Nomenclature	Amount	Nomenclature	Amount	Um
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	6	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	6	Form Printed Radiographic Rpt 8x10.5	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Fixer X-ray Film Processing	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Developer X-ray Film Processing Liquid	1	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 686 SKULL SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 10x12 Linear Focused Type Str Wafer	1	Label X-ray Film Identification Pressure Sensitiv Film Radiographic Kodak T-Mat H/Ra 24x30CM	1	EA
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2	EA
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	10	Fixer X-ray Film Processing	1	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1			
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indiciting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 689 SINUSES WATERS**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Grid Radio 10x12 Linear Focused Type Str Wafer	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2	EA
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	2	Fixer X-ray Film Processing	1	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1			
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indiciting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 691 FACIAL BONES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 10x12 Linear Focused Type Str Wafer	1	Label X-ray Film Identification Pressure Sensitive Film Radiographic Kodak T-Mat H/Ra 24x30CM	1	EA
Marker Set X-ray Film Ident Gothic Letter	4	Envelope Photographic Negative 17.5x14.5	8	EA
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	1	Fixer X-ray Film Processing	2	EA
Illuminator X-ray Film Fluorescent Illuminated	8	Developer X-ray Film Processing Liquid	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1			
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicating Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 692 MANDIBLE SERIES**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS Grid Radio 10x12 Linear Focused Type Str Wafer	1	Label X-ray Film Identification Pressure Sensitive Film Radiographic Kodak T-Mat H/Ra 24x30CM	1
Marker Set X-ray Film Ident Gothic Letter	1	Envelope Photographic Negative 17.5x14.5	2
Rule Anatomical Transparent 2x18	1	Form Printed Radiographic Rpt 8x10.5	2
Cassette Radiographic Film w/Lanex 24x30CM	10	Fixer X-ray Film Processing	1
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1
Screen X-ray Protective Mobile 6x2.5 FT	1		
X-ray Apparatus Radio Port 25-40MA Low Cap	1		
Apron X-ray Protective Coat 38x24 Lt Weight	1		
Holder Radiac Detecting Element Steel Style 12C	1		
Thermometer Self-Indicting Bimetallic 8.5IN	1		
Table Radiographic Portable Adj 72x27	1		
Bottle Waste X-ray Processor 5 GL Capacity	1		
Processing Machine Rad Film Auto Table Top	1		

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 693 INTERPRETATION OF FILM STUDIES**

**EQUIPMENT**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
<b>CONSUMABLES</b>				
Illuminator X-ray Film Fluorescent Illuminated	1	Magnifier Glass Monocular 1xNominal Circ 4IN	1	

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 698 GALL BLADDER SERIES**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Label X-ray Film Identification Pressure Sensitiv	1	EA
Grid Radio 10x12 Linear Focused Type Str Wafer	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Marker Set X-ray Film Ident Gothic Letter	1	Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Rule Anatomical Transparent 2x18	1	Envelope Photographic Negative 17.5x14.5	2	EA
Cassette Radiographic Film w/Lanex 24x30CM	4	Form Printed Radiographic Rpt 8x10.5	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	2	Fixer X-ray Film Processing	1	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Developer X-ray Film Processing Liquid	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1			
X-ray Apparatus Radio Port 25-40MA Low Cap	1			
Apron X-ray Protective Coat 38x24 Lt Weight	1			
Holder Radiac Detecting Element Steel Style 12C	1			
Thermometer Self-Indicting Bimetallic 8.5IN	1			
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 700 CYSTOGRAM (RADIOOL/X-R SPEC)**

**EQUIPMENT**

**CONSUMABLES**

<b>Nomenclature</b>	<b>Amount</b>	<b>Nomenclature</b>	<b>Amount</b>	<b>Um</b>
Caliper X-ray Technique L-shape Alum & CRS	1	Diatrizoate Meglumine & Diatrizoate Sodium	2	ML
Marker Set X-ray Film Ident Gothic Letter	1	Adhesive Tape Surgical 3INx5YD	1	IN
Rule Anatomical Transparent 2x18	1	Needle Hypo C13A GP 21GA 1.185-1.312" Luer	2	EA
Cassette Radiographic Film w/Lanex 35x43CM	8	Syringe Luer Plas Disp Reg Luer Tip 60 ML	2	EA
Illuminator X-ray Film Fluorescent Illuminated	1	Label X-ray Film Identification Pressure Sensitive	1	EA
Screen X-ray Protective Mobile 6x2.5 FT	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	6	EA
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Envelope Photographic Negative 17.5x14.5	2	EA
Apron X-ray Protective Coat 38x24 Lt Weight	1	Form Printed Radiographic Rpt 8x10.5	2	EA
Holder Radiac Detecting Element Steel Style 12C	1	Fixer X-ray Film Processing	1	EA
Thermometer Self-Indicating Bimetallic 8.5IN	1	Developer X-ray Film Processing Liquid	1	EA
Table Radiographic Portable Adj 72x27	1			
Bottle Waste X-ray Processor 5 GL Capacity	1			
Processing Machine Rad Film Auto Table Top	1			

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

**X-ray Task: 701 URETHROGRAM (RADIOL/X-R SPEC)**

EQUIPMENT		CONSUMABLES	
Nomenclature	Amount	Nomenclature	Amount
			Um
Caliper X-ray Technique L-shape Alum & CRS	1	Diatrizoate Meglumine & Diatrizoate Sodium	2
Marker Set X-ray Film Ident Gothic Letter	1	Adhesive Tape Surgical 3INx5YD 1TY	1
Rule Anatomical Transparent 2x18	1	Needle Hypo C13A GP 21GA 1.185-1.312" Luer	2
Cassette Radiographic Film w/Lanex 35x43CM	8	Syringe Luer Plas Disp Reg Luer Tip 60 ML	2
Illuminator X-ray Film Fluorescent Illuminated	1	Label X-ray Film Identification Pressure Sensitiv	1
Screen X-ray Protective Mobile 6x2.5 FT	1	Film Radiographic Kodak T-Mat H/Ra 35x43CM	6
X-ray Apparatus Radio Port 25-40MA Low Cap	1	Envelope Photographic Negative 17.5x14.5	2
Apron X-ray Protective Coat 38x24 Lt Weight	1	Form Printed Radiographic Rpt 8x10.5	2
Holder Radiac Detecting Element Steel Style 12C	1	Fixer X-ray Film Processing	1
Thermometer Self-Indicting Bimetallic 8.5IN	1	Developer X-ray Film Processing Liquid	1
Table Radiographic Portable Adj 72x27	1		
Bottle Waste X-ray Processor 5 GL Capacity	1		
Processing Machine Rad Film Auto Table Top	1		

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